

Consultation

Retail Energy Code: Technical Specification approach consultation

APPENDIX 1: Data Specification approach

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1. Data Specification approach

Appendix summary

This document sets out the proposed Data Specification that will provide the data that will support the requirements set out in the REC. It will also provide a repository of data items and energy market messages for the arrangements managed by the UNC, IGT UNC, DCUSA and industry interoperability requirements under the SEC. The Data Specification is proposed to go live with the introduction of the Retail Code Consolidation (RCC) Significant Code Review (SCR). Changes to the Specification will be introduced when the Central Switching Service (CSS) is introduced.

Questions

Question 1: Do you agree with the approach set out in this document for developing the REC Data Specification?

1. Introduction

1.1. One of the key elements of the REC Technical Specification is a Data Specification which will define the metadata associated with data, people, processes, and business rules (obligations) within the REC, and other industry codes, and hold this information in a digitised format i.e. information to be held within a structured database. The Data Specification will include:

- A Data Item Catalogue - containing details of all the data items that are sent and received between market participants, service providers and third parties (such as Price Comparison Websites);
- A Message Catalogue - containing details of all structured data interactions 'Energy Market Messages', between market participants / service providers. This will include the source and destination of each message, details of the data items contained within the message and the message structure;
- Data Access – The means and rules regarding access to specific data items via Energy Market Messages to market participants, i.e. the 'Data Access Matrix' defined within the Data Access Schedule; and
- E2E Processes and Interaction Sequence Diagrams (ISDs) - the graphical representation of the End to End (E2E) switching process (currently presented in

ABACUS¹) and any other process defined within the REC, together with ISDs which illustrate the source, destination, flow and sequencing of messaging between parties.

- 1.2. The June Switching Programme and Retail Code Consolidation consultation,² proposed that the contents of the existing electricity Data Transfer Catalogue (DTC), RGMA Data Flow Catalogue (DFC) and gas Supplier DFC would migrate into the REC, with provisions being included within the Data Specification alongside the definition of new Central Switching Service (CSS) data items and messages. We have now given further consideration to the inclusion of UK Link file formats, as set out below, and concluded that metadata currently defined within the UK Link Manual should also be included in the Data Specification.

2. Summary of existing Data Catalogues

- 2.1. This appendix sets out the proposed migration plan for the transfer of responsibility for the existing data catalogues into the REC, focusing on the migration of the metadata currently held by existing code bodies and the development of governance provisions under the REC to robustly manage future change. It also covers the inclusion of metadata relating to the new CSS messages. Any development activity must also take into account other data related projects such as the development of midata³ and Mandatory Half Hourly Settlement provisions and the ongoing outcomes of the Modernising Energy Data collaboration undertaken between Ofgem, BEIS and Innovate UK.⁴
- 2.2. The scope of the metadata (i.e. the content) included within the plan includes data held within existing data catalogues governed by the MRA, SPAA and Uniform Network Code (UNC). The electricity DTC holds details of data items and data flows that are either owned by the MRA or the Balancing and Settlement Code (BSC) to facilitate switching, metering activities and settlement processes. In gas the equivalent data items and data flows are held in separate catalogues with some aspects of metering and switching activities covered by the RGMA and Supplier DFCs governed by SPAA; and other aspects of metering and switching activities defined in the UK Link Manual and governed by the UNC, together with settlement related data definitions.
- 2.3. With the planned closure of SPAA and MRA as part of the RCC SCR it is proposed that the content of the electricity DTC and SPAA DFCs will migrate to the Data Specification on implementation of this SCR i.e. April 2021. The transfer of UK Link metadata is not directly linked to the RCC SCR and could therefore occur at a separate time. This is considered further in Section 3 below.
- 2.4. It is proposed that the majority of data flows defined within the Smart Energy Code (SEC) are not included within the Data Specification as these relate to interfaces between suppliers and smart metering devices; whereas the Data Specification focuses

¹ <https://dcc2-pub.avolutionsoftware.com/Switchingbaseline/#Content/Diagrams/5038370.svg>

² https://www.ofgem.gov.uk/system/files/docs/2019/06/june19_switching_programme_and_retail_code_consolidation_consultation_final2.pdf

³ <https://www.ofgem.gov.uk/gas/retail-market/market-review-and-reform/midata-energy-project>

⁴ The Energy Data Taskforce is the initial work undertaken by this collaboration and is discussed further in Sections 4 and 6.

on structured data interfaces between market participants and services providers. The one exception to this being the Retail Data Provider (RDP) interactions between the gas and electricity registration services / CSS and the Smart Data Communication Company (DCC). It is proposed that these will be defined in the Data Specification as they are interfaces are between defined market participants / service providers.

- 2.5. Further background information on the existing energy data catalogues can be found in Annex 1 to 4.

3. Inclusion of UK Link File Formats in RCC SCR

- 3.1. As explained further in Appendix 4, messages and interfaces governed under the UNC are defined within the UK Link Manual. Over the past year, industry have been discussing the potential to consolidate the information held within the UK Link Manual with the SPAA DFCs to create a single gas data catalogue. This would reflect the position in electricity where retail and settlement data and messages are defined in a single place. As a precursor to this work, Xoserve initiated a review of the UK Link file formats to ensure these are fit for purpose to enable harmonisation with SPAA metadata and to facilitate new interface channels with CSS. This review is ongoing, and it is questionable whether there will be sufficient time for a single gas catalogue to be developed ahead of the implementation of the operational REC in April 2021.
- 3.2. One of the key concerns identified with the development of a single gas catalogue is the associated governance. At present there are no formal cross code governance arrangements between SPAA and UNC and it would not be practical to introduce these ahead of the closure of SPAA. It is therefore proposed that any consolidation exercise should focus on potential inclusion in the REC Data Specification, rather than SPAA.
- 3.3. There are three main areas to consider as part of any consolidation activity:
- a) Harmonisation of metadata into a consistent format to simplify user interpretation;
 - b) Hosting and publication of the relevant metadata registers; and
 - c) Responsibility and control i.e. the role of various parties in the change control process.
- 3.4. For the metadata currently defined in the electricity DTC and SPAA DFCs, the position in relation to a) and b) is relatively straight forward, with metadata migrating into the Data Specification in accordance with the agreed metadata model (which is explained further in Section 5). However, these points need more detailed consideration with respect to UK Link file formats, as set out below.

Format of metadata

- 3.5. As highlighted above, Xoserve is currently carrying out a review of the UK Link file formats, therefore it would seem sensible for the output of this review to be consistent with the Data Specification, regardless of whether the metadata itself migrates to the REC. Whilst this would not result in a consolidated gas and electricity data catalogue, it

would allow parties to develop a consistent understanding of metadata regardless of the code under which it is governed.

- 3.6. The Data Specification has been developed for inclusion in this consultation. The application of this model to the UK Link file formats has been tested with Xoserve ahead of the consultation to ensure it is compatible with the UK Link metadata.

Hosting and publication

- 3.7. The next level of consolidation would be to transfer responsibility for hosting the underlying metadata and associated publication of UK Link file formats from Xoserve to the REC Code Manager. Under this approach, control of the metadata would remain with UNC Parties, however UK Link file formats would be published as part of the overall Data Specification. Where changes to the metadata are agreed under the UNC, a request will be sent to the REC Code Manager to update the relevant catalogues and re-publish the Data Specification.
- 3.8. The added benefit to this approach is that it will enable each party to look in a single place for information relating to gas and electricity retail and settlement data. This would be consistent with the recommendations from the Energy Data TaskForce, as it lowers barriers to the development of a consistent approach to data visibility, via a single service for all metadata.
- 3.9. We have discussed this proposal with the RDUG, the Data Services Contract (DSC) Change Management Committee and the IGT UNC Modification Workgroup; and concluded that migration of UK Link file formats should be included in the RCC SCR. We note that further work is required to identify changes to the UNC to link to the format and content of files defined in the Data Specification and support the required cross code interactions.

Governance

- 3.10. The inclusion of UK Link file formats in the Data Specification emphasises the importance of ensuring that the overall governance framework places responsibility and control over the actual metadata on those organisations that create and / or use the relevant data.
- 3.11. At present the gas arrangements include UK Link and RGMA flows that are used together to deliver the end to end flow of information from Meter Asset Managers (MAMs) to the CDSP e.g. the ONJOB data flow is sent from MAM to Supplier following the installation of a meter. A further ONJOB is then sent from Supplier to Shipper under SPAA governance. Information from the ONJOB is then transferred to the CDSP by the Shipper via the JOB data flow governed by the UNC.
- 3.12. Due to the significant level of interaction between UK Link and RGMA flows, the data item definition must be the same within both arrangements. However, updates to the metadata for data items and messages used within both SPAA and UNC are not automatically linked. Therefore, changes to this metadata must be progressed under two separate governance processes in order to ensure these remain consistent.
- 3.13. Historically this has resulted in issues where changes approved under one governance process have been rejected under the other. A key aspect of the proposed REC change

process is to mitigate these types of issue by implementing a robust cross code governance framework to manage changes that impact multiple codes. Further information on this cross-code governance framework is included in the main body of this consultation and is expected to be delivered regardless of whether the UK Link file formats are hosted within the Data Specification.

- 3.14. Consideration has also be given to the suitability and extensibility of the Data Specification to ensure that recommendations and requirements which will emerge from the Modernising Energy Data data best practice work will not constrain or cannot be easily aligned to a common approach or standard defined via that work.

4. Data Best Practice

4.1. The Energy Data Task Force (EDTF), commissioned by Ofgem, BEIS and Innovate UK, developed an industry vision for how we can all make the best use of data and digitise the energy system, supporting the energy transition. We welcome the report and its recommendations.^{5,6} Ofgem, BEIS and Innovate UK are continuing to work together and are using the EDTF findings as a catalyst for their agenda to help Modernise Energy Data (MED). Our work developing the Data Specification is consistent with, and takes forward, some of the EDTF recommendations, driving specific policy advancements that align with the ideals of data visibility, presumed open data and digitalisation of the REC.

4.2. The key enabler for REC digitalisation is data and we believe data-based enablers should meet data best practice. The EDTF considered many of these practices, and the Ofgem MED work is further progressing this work. The ongoing MED work is now defining “Data Best Practice” guidance for use with energy data.⁷ The list below captures some of the early thinking about what this is likely to include, but this is an active area of work where understanding is rapidly improving and evolving and as consultation takes place with stakeholders. The data best practice guidance development is being run by the Energy Systems Catapult (ESC), we urge stakeholders to contact the ESC to get involved.⁸ We will continue to review this list of themes in consultation with stakeholders:

- Apply data best practice to metadata just as you do to any other data;
- Understand user needs,
- Identify the types of roles played by stakeholders of the data;
- Data relating to common assets is presumed open;

⁵ <https://es.catapult.org.uk/news/energy-data-taskforce-report/>

⁶ <https://www.ofgem.gov.uk/about-us/ofgem-data-and-cyber-security>

⁷ <https://www.ofgem.gov.uk/publications-and-updates/we-are-creating-data-best-practice-guidance>

⁸ <https://es.catapult.org.uk/news/have-your-say-on-energy-data-best-practice/>

- Presumed open data should go through an "openness triage" conducted by the data controller;
 - Data should be interoperable with other data and digital services;
 - Ensure data quality is sufficient to meet the needs of its users;
 - Make data you control easy to use, linkable and portable;
 - Make data you control easy to discover, search and understand;
 - Protect data in accordance with Security, Privacy and Resilience (SPaR) best practice.
- 4.3. This ongoing work, including explanations of the above, will be updated on our website.⁹ Correspondence directly relating to the data best practice themes should be directed to ofgemdataservices@ofgem.gov.uk.
- 4.4. The MED work has also brought forward a Small Business Research Initiative competition, called Modernising Energy Data Access¹⁰. The goal of this work is to innovate solutions that enable improved interoperability between digital services, particularly for cases where market forces might not be expected to deliver the integration layer between services and therefore effective data exchange. The outcomes delivered by this competition may be valuable for making future improvements to these technical needs for the Retail Energy Code.

5. Transformation of Data Catalogue Metadata

- 5.1. As highlighted above, the Data Specification will include a Data Item Catalogue specifying the metadata associated with each data item and a Message Catalogue defining the contents and format of each message / interface. This will include data flows transmitted across a communications network such as the Data Transfer Network (DTN) / Information Exchange (IX); Application Programming Interfaces (APIs) used to share data between market participants / service providers; and other structured data interactions obligated under the REC and other industry codes e.g. reporting.
- 5.2. A common metadata model is required to ensure data defined within the Data Specification is consistently described, can be used across a variety of interfaces and transferred between a variety of users. The metadata model is described further in Section 5.

⁹ <https://www.ofgem.gov.uk/about-us/ofgem-data-and-cyber-security>

¹⁰ <https://apply-for-innovation-funding.service.gov.uk/competition/491/overview>

- 5.3. Transformation of the CSS interface definition and data dictionary will be carried out based on the approved interface specification, in parallel with the migration of existing metadata from the SPAA, MRA and UNC.
- 5.4. Over the summer, we have considered the process for transforming metadata held within existing data catalogues. Three potential options were identified for progressing this migration activity:
- Option 1 – the electricity and gas metadata continues to be hosted by the existing service providers (Gemserve for the DTC, ElectraLink for the SPAA DFCs and Xoserve for the UK Link Manual) and the output is provided to industry via the existing mechanisms (although publication would be on the existing REC Website rather than the SPAA and MRA websites). This option is not recommended as it will result in additional complexity with the maintenance of commercial arrangements with service providers who have no ongoing relationship within the REC environment. However, it could be considered as a fall-back option if the metadata cannot be migrated to the REC ahead of April 2021.
 - Option 2 – New registers are developed under the REC to host the metadata for each of the separate data catalogues. This will allow the metadata from each data catalogue to be migrated into the REC without undergoing any transformation. This option is not recommended as it would not provide any benefits over and above option 1 as the content of the data catalogues would not be consolidated. It would also result in time consuming development activity that would have a limited shelf-life as future consolidation activities are delivered.
 - Option 3 – A new register is developed under the REC based on the agreed REC metadata model. Metadata held within existing data catalogues will undergo a transformation exercise as part of the migration into the REC which will consolidate data items to remove existing duplication (where a single data item is currently defined in multiple codes). This will not require changes to the logical format for any data and is simply a change to the way the information is held within the relevant database.
- 5.5. We have concluded that option 3 is the preferred approach as this will facilitate the harmonisation of gas and electricity metadata in a timely manner and remove the existing fragmentation where multiple registers are governed under a number of different codes. Further information on the overall delivery plan is included below.

6. Overall delivery plan

- 6.1. In order to show the full end to end delivery plan required ahead of RCC SCR implementation, this section introduces the concept of the Architecture Repository. The Architecture Repository will be the means by which the information within the Operational Schedules and Data Specification (plus other elements of the Technical Specification) is made accessible to users in a digitalised format i.e. graphical representation or catalogues of information included within various products that form part of the overall REC governance framework.
- 6.2. Once the content of the Data Specification has been established through the migration exercise referred to in Section 5, the Code Manager will be responsible for developing

the enduring Energy Market Architecture Repository (EMAR) to support the delivery of a variety of user interfaces and data interfaces.

- 6.3. The EMAR will make REC obligations and artefacts easily accessible to market participants and code managers; ensuring that all components of the REC and their interrelationships are managed and visible. It will be used on an enduring basis to facilitate market entry, change management and performance assurance processes; assuring that they are delivered in a clear and complete manner.
- 6.4. Creation of the Data Specification, and subsequently the EMAR will require several phases of work:
- a) Phase 1 - development of a conceptual (Figure 1 and Annex 6) and logical data model (Figure 2 and Annex 7) and population with illustrative examples using existing industry metadata transformed into the new standard e.g. examples of CCS messages, DTC flows / data items and UNC Link files and data items. Phase 1 has been completed with the output included in this consultation.
 - b) Phase 2 – Physical design of the Data Specification (database schema) to reflect object classes¹¹ and their attributes incorporated in the logical data model (defined within appendix 5). This will take the form of a relational database and be undertaken by Ofgem as a precursor to the population of industry data. Phase 2 will also include population of CSS metadata and the migration of existing metadata from the MRA DTC, RGMA DFC, Supplier DFC and the UNC UKLink file formats into the Data Specification. Phase 2 will be delivered Q1 2020.
 - c) Phase 3 – Creation of the end to end Architecture Repository (based on the logical data model) by the Code Manager once appointed, in line with the enduring digitalisation strategy. Phase 3 will commence on appointment of the Code Manager and will be completed at RCC SCR implementation (April 2021).
- 6.5. These phases are described in further detail below:

Phase 1 – conceptual and logical data modelling

- 6.6. The initial phase of work undertaken to support establishment of the Data Specification is the development of a conceptual data model (fig.1). This encompasses the individual object classes that make up the end to end architecture, showing relationships between object classes and the definition of each. An illustrative mapping of the conceptual object classes to existing metadata is provided within Annex 5.
- 6.7. Following this, a logical data model has been created to define the attributes (data items) of each object class identified within the conceptual model (Figure 2 provides an extract of this logical data model and the full model is included within Annex 7).

¹¹ Object classes are representations of individual and unique 'things', data elements are attributes of those 'things', e.g. an address is an object class and postcode, street name, town are attributes.

- 6.8. Illustrative data has been included in this consultation (Annex 8) to reflect a sample of existing messages to demonstrate how the existing metadata will be transformed or mapped to the Data Specification. Definitions of the object classes related to data items and their mapping to existing metadata has been documented in Annex 5.

Phase 2 – physical design and migration of data

- 6.9. The metadata to be included in the Data Specification shall include metadata currently defined in the MRA DTC, SPAA RGMA and Supplier DFCs and the UNC UKLink Files and File Formats.
- 6.10. Other structured data interfaces have also been identified following our review of the existing code documentation and service definitions, for example, APIs provided by the Enquiry Services or reports provided by Switching Data Services to market participants. These interfaces will also be migrated to the Data Specification.
- 6.11. The design of the migration of metadata from legacy data catalogues to a single unified Data Specification will commence in Q1 2020 with full migration expected ahead of the Spring 2020 consultation. The physical design of the Data Specification will be delivered by creating a relational database to hold the metadata migrated and transformed from existing data catalogues.
- 6.12. The following activities will be required as part of the migration activity:
- Transformation of existing metadata to the standard defined within the physical data model, including but not limited to, Energy Market Data Item (and related data) and Energy Market Message (and related data). It should be noted that the intention is to enable presentation of information in a consolidated format, with the ability to apply full digitalisation at a later date; therefore, we do not expect changes to be made to the format of existing data or messages.
 - Population of metadata owner¹² (e.g. the code responsible for maintaining the metadata) for all data items. As this activity will involve the review and apportionment of the MRA DTC data catalogue data items and messages to new codes (one of BSC, REC and DCUSA) it is proposed that this work will be led by the Ofgem Switching Programme and subsequently handed over to the Code Manager once they are in place.
 - The metadata ownership will define which code takes responsibility for the metadata associated to a data item or message. It does not confer any other rights or limitations on that data. For example, other codes may define the inclusion of a data item (owned by another code) within a message that they own.

¹² Section 4.2 of the REC Data Management Schedule,
https://www.ofgem.gov.uk/system/files/docs/2019/06/rec_data_management_schedule.pdf

- In cases such as that described, the Cross Code Governance process would utilise the Data Specification to identify which codes are impacted by any proposed changes and would manage change of that nature accordingly.
- For data items where the metadata owner is identified as the REC, the data master will also be populated; this will include all CSS, RGMA DFC and Supplier DFC data items and a proportion of the current electricity DTC data items. Other governance information will be populated where there is a clear obligation for a REC Party, e.g. Meter Point Location related will define the DNO as a data master and the Supplier as a data responsible user.
- BSC, DCUSA and UNC code bodies will be encouraged to begin their own activities to populate data master and data responsible user for those data items that they are the metadata owner for. This could be completed at the same timescales as the REC development or on an iterative or risk-based approach dependent on the decisions taken within each code.

6.13. If gaps are identified in switching programme design as a result of this activity, they will be managed via programme governance i.e. the progression of a change request.

Phase 3 – developing of Architectural Repository and associated user interfaces

6.14. It is the intention that the REC Code Manager, once procured, will take on the responsibility for the development and establishment of additional elements of the EMAR, building upon but not prescribed by, the logical model produced in phase 1. This will be one of their first activities to be delivered following appointment, enabling the digitalisation of the REC and the transformation of the Microsoft Word based artefacts which have been produced to date by the Ofgem Switching Programme. e.g. digitising the obligations, processes and interfaces specified within operational schedules.

6.15. As such, it is proposed that the design of the end to end components including population of wider market business rules and processes (e.g. showing end to end gas processes which may include REC and UNC related activities), is progressed beyond the logical design by the Code Manager in tandem with their digitalisation strategy and that of other codes.

Interaction with other industry projects

6.16. Development of the Data Specification, and subsequently the EMAR, is in line with the proposals being considered by the EDTF and the intentions of the MED work, as set out in Section 4. Other industry projects which need consideration include Mandatory Half Hourly Settlement and midata.

6.17. Mandatory Half Hourly Settlement will result in significant changes to the existing data and interfaces currently used for settlement purposes. This is likely to result in the removal of a number of existing DTC flows and data items which will be replaced with new interfaces. Our expectation is that the metadata required for these new interfaces will be included in the Data Specification alongside the metadata for other industry interfaces.

6.18. The objective of the midata project is to develop a secure way to quickly and easily give trusted Third-Parties (this may include Price Comparison Websites or suppliers

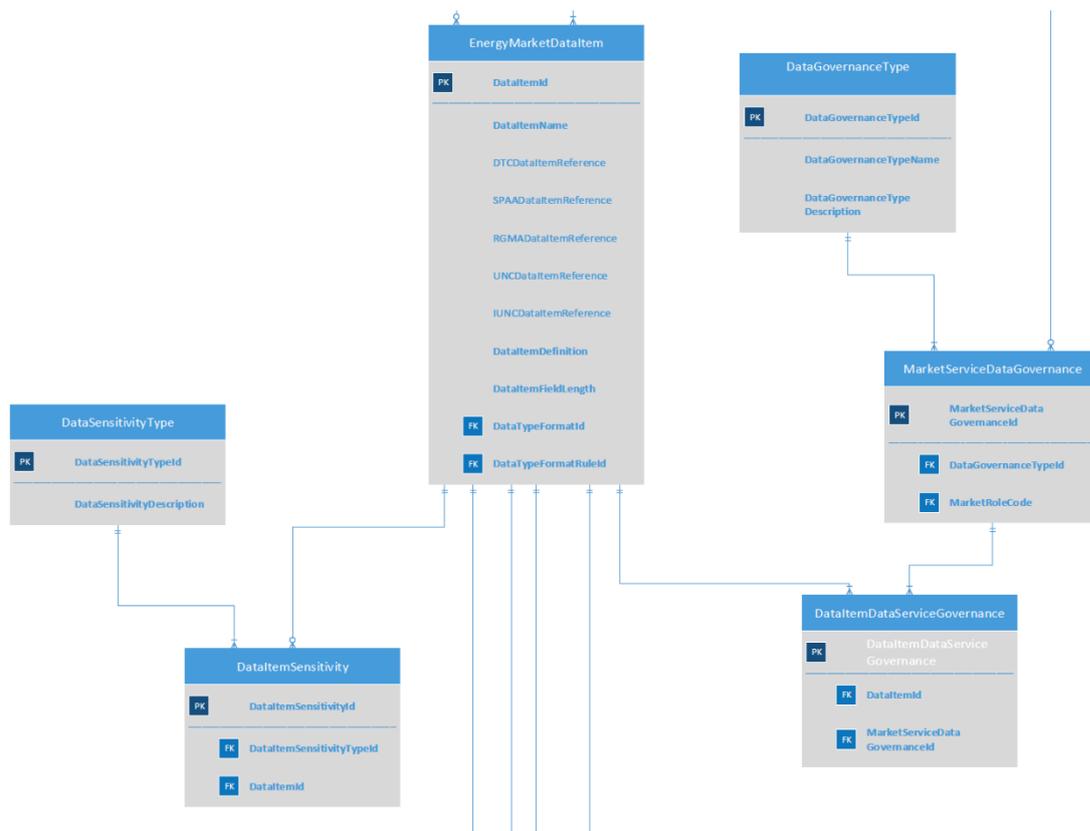


Figure 2. Extract from EMAR logical model (a PDF file is included as Annex 7)

7. Roles and responsibilities

7.1. This approach document highlights a number of deliverables / activities that must be developed during 2019 / 2020. This section summarises each of the key deliverables and the organisation(s) responsible for delivery:

- Development Approach – this consultation sets out the proposed approach to the migration of the existing data catalogues into the REC and the overall delivery plan. Ofgem’s Switching Programme has been responsible for developing this approach in consultation with existing code bodies (e.g. ELEXON, ElectraLink, Genserv and Xoserve). Proposals have been reviewed by the Regulatory Design User Group (RDUG) prior to inclusion in this consultation.
- Metadata Model – conceptual and logical data models, encompassing the individual object classes, and their attributes, that make up the end to end architecture. Ofgem’s Switching Programme has been responsible for developing these models in consultation with existing code bodies (e.g. ELEXON, ElectraLink, Genserv and Xoserve) and also DCC with respect to CSS messages. Proposals have been reviewed by the RDUG prior to inclusion in this consultation.

- Cross Code Steering Group ToRs - Ofgem’s Switching Programme has been responsible for developing the ToRs in consultation with existing code bodies (e.g. ELEXON, ElectraLink, Gemserv and Xoserve) and the RECCo Board. The draft ToRs have been reviewed by the RDUG and will be consulted upon, alongside the wider REC change management arrangements, this year.
- Transformation of existing metadata into proposed REC structure – Ofgem’s Switching Programme is responsible for this activity as part of the development of the Data Specification. The initial output will be developed in consultation with existing code bodies (e.g. ELEXON, ElectraLink, Gemserv and Xoserve) and also DCC with respect to CSS messages. The output will also be reviewed by the RDUG prior to the Spring 2020 consultation. Following consultation, this metadata register (which will form the data item and message catalogues) will be maintained until April 2021, alongside the other RCC SCR drafting, in parallel with the existing code bodies managing the live service.
- Development of consequential changes – Existing code bodies have been asked to develop consequential changes for inclusion in the Switching SCR. We do not expect these changes to include provisions relating to cross code co-ordination as the requirements have yet to be agreed. It is therefore proposed that existing code bodies should be responsible for developing the changes to proposed code drafting following this consultation (once the proposed provisions are clear). These consequential changes should be provided to Ofgem in advance of the Spring 2020 consultation.
- Design, development and implementation of the Architecture Repository (including development of ISDs and E2E Process Diagrams) – The RECCo Board will be responsible for this activity via requirements placed on the newly appointed Code Manager.

7.2. Although the delivery of some activities will be the responsibility of code bodies and / or the RECCo Board, Ofgem will retain oversight of each element via the SCR arrangements to ensure delivery in line with the proposed timeline set out in Section 8.

8. Timeline

Date	Activity
Completed	Data Specification development approach and metadata models developed including illustrative examples using existing industry metadata transformed into the new standard.
Completed	Draft Cross Code Steering Group ToRs developed.
Completed	Gap analysis of existing metadata against proposed metadata model including definition of new attributes such as metadata owner, data master and responsible user.

Winter 2019	Industry consultation on development approach, metadata models and Cross Code Steering Group ToRs.
Jan 2020	Xoserve review of UK Link metadata (taking into account proposed REC metadata standard).
Jan – Apr 2020	Development of physical design of Data Specification and transformation of existing and new CSS metadata into proposed REC structure including addition of new attributes such as data master and consolidation of data items with the same structure to ensure a single version of the truth e.g. RGMA definition of MPRN and UK Link definition specified as a single data item.
Jan – Apr 2020	Development of consequential changes to BSC, UNC and other industry codes to reflect the cross-code governance requirements.
Q2 2020	Code Manager appointed
Spring 2020	Ofgem consultation on content of the Data Specification (existing and new CSS metadata held within Data Item and Message Data Catalogues).
May - Nov 2020	Maintenance of Data Specification content, taking into account changes progressed via existing code or changes to the CSS metadata identified with the delivery of the full physical design.
Apr 2020 – Apr 2021	Design, development and implementation of Architecture Repository in line with digitalisation strategy.
Q3 2020	Baseline REC drafting (including Data Item and Message Catalogues, ISDs and E2E Process Diagrams held within Architecture Repository).
Nov 2020	REC and other code drafting finalised for SCR submission.
Nov 2020 – Apr 2021	Establish Cross Code Steering Group.

Apr 2021	RCC SCR implemented with full Architecture Repository. ¹³ Further digitalisation may be delivered at a later date.
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¹³ CSS Messages included as part of the Switching SCR may initially be 'switched off' until CSS go live. A separate paper is being developed to consider the transitional choreography.

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Annex 1 – Electricity Data Transfer Catalogue

1.1. The electricity DTC was introduced in 1998 with the emergence of competition in the electricity supply market and is governed by the MRA with changes to the content of the catalogue progressed via a bespoke DTC change process. Data items and data flows held within the DTC are either owned by the MRA or the BSC and this responsibility is taken into account within the change process.

1.2. The DTC itself is provided in an online format on the MRA website and includes the following downloadable documents:

- Annex A - describes the specification and notation used to describe data flows and data items;
- Annex B - contains the data flow catalogue;
- Annex C - contains rules for the completion of Data Flows referenced in Annex B;
- Annex D - contains the data item catalogue, holding definitions for all data items referenced in Annex B;
- Annex E - lists the domain definitions for the data items listed in Annex D;
- Annex F - provides a cross-reference of data flows to source/recipient and
- A Microsoft Access database containing all the domain types, data items, data groups and data flows.

1.3. Market participants and other bodies in the energy market use the Microsoft Access database to drive automated processes and systems. For example, ElectraLink uses the database to drive the validation and file transformation functions within the Data Transfer Service (DTS).

Annex 2 - RGMA Data Flow Catalogue

1.1. The Retail Gas Metering Arrangements (RGMA) Baseline was introduced in 2004 with the emergence of competition for meter services and is governed by the SPAA with changes progressed via the standard SPAA change process. The RGMA Baseline document defines standard flow formats and data item attributes for transferring information regarding installation, exchange and removal of meters, and transfer of information following change of Supplier or change of Meter Asset Manager (MAM).

1.2. In 2016, SPAA initiated a review of the RGMA Baseline in order to streamline the documentation and introduce an Online RGMA DFC. The Online RGMA DFC was implemented in June 2017 and includes the following downloadable documents:

- RGMA Baseline – defining the end to end processes, exceptions and guidance for designing data flows;
- Annex A - describes the specification and notation used to describe data flows and data items;
- Annex B - contains the data flow catalogue;
- Annex C - contains the data item catalogue, holding definitions for all data items referenced in Annex B; and
- Annex D - lists the domain definitions for the data items listed in Annex C.

1.3. A Microsoft Access database is also used to manage the underlying domains, data items and data flows. Managing the data in this database enables the on-line functionality and will facilitate added value services on the DTS in the future, such as file validation and file format translation.

1.4. The structure of the information contained within the RGMA Annexes reflects the structure of the information held within the electricity DTC, where possible.

Annex 3 – Gas Supplier Data Flow Catalogue

1.1. The SPAA also contains the definition of the following supplier data flows:

- Notification of Old Supplier Information (NOSI) in Schedule 20;
- Resolution of Erroneous Transfer (RET) in Schedule 10:
- Supplier/Shipper Agreed Reads (SARs) in Schedule 11:
- Debt Assignment Protocol process (DAP) information in Schedule 9.

1.2. Historically, the definition of these data flows was included in SPAA Schedule 12 'BISCUIT Data Dictionary'. However, in recent years, changes have been progressed to mandate the sending of NOSI, RET, SAR and DAP flows via the DTS which has included a review of the flow definition and the transfer of information into separate SPAA Schedules.

1.3. Following the implementation of the Online RGMA DFC in June 2017, a new SPAA project was initiated to extend the DFC to include these Supplier data flows. The Supplier DFC was implemented in November 2018 resulting in a common approach to the definition of all SPAA data flows and data items.

Annex 4 - UK Link Manual

1.1. Data flows governed under the UNC are defined within the UK Link Manual and include flows to and from the UK Link system (this includes the UK Link Application, UK Link Gemini, the Data Enquiry System (DES), and the Contact Management System (CMS)). These systems are used by the Central Data Service Provider (CDSP) and UK Link Users, i.e. Shippers, Transporters (including IGTs and the Transmission System Operator) and the Daily Metered Service Provider (DMSPs), examples of flows are:

- Supply Point Administration – i.e. data flows to maintain the Supply Point Register from Shipper Users;
- Meter Reading flows – records received from Shipper Users and the Daily Metered Service Provider;
- RGMA flows i.e. the JOB and UPD sent from the Shipper to the CDSP;
- Settlement flows – invoices from CDSP to Shipper Users on behalf of Transporters.; and
- Delta flows to Transporters following updates of the Supply Point Register.

1.2. Some of these flows are used in conjunction with RGMA flows, to deliver the end to end flow of information from MAMs to the CDSP e.g. the ONJOB data flow is sent from MAM to Supplier following the installation of a meter. A further ONJOB is then sent from Supplier to Shipper under SPAA governance. Information from the ONJOB is then transferred to the CDSP by the Shipper via the JOB data flow governed by the UNC.

1.3. Due to the significant level of interaction between UK Link and RGMA flows, the data item definition must be the same within both arrangements. Whilst the introduction of the Online RGMA DFC amended the presentation of the data flow and data item information, consistency between the RGMA and UK Link flows was maintained.

1.4. A review of UK Link file formats is currently underway which will facilitate migration into the REC when required.

Annex 5 – Definitions

1.1. A definition of the object classes, associated to market participants, data items and messages, represented within figure 1 of (the conceptual model) are provided in the table below:

Model Area	Object Class Name	Object Class Definition	Explanatory Notes	Analogous to Existing Codes
Market Participant Data	MarketParty ¹⁴	A person identified in an industry code, as a defined entity, which has one or more obligations under that code.	This may include licenced parties, parties who accede to a code or a subsidiary contract defined within code or a party which is otherwise identified as performing activities within a code. e.g. the SMRA or CDSP e.g. Gas Supplier	Historically the person responsible for a service and the data service have been represented by a single reference – Market Role, e.g. 'HHDA' references a person and/or service, whilst 'MPAS' references a service only.
Market Participant Data	MarketDataService	A service defined within an industry code as the source or target of Energy Market Messages.	Data services are currently defined within the BSC, MRA and UNC for the purposes of message routing and obligations related to the transfer and storage of data. e.g. the SMRS or Supplier Data Service	e.g. Market Role. (see Market Party above)
Market Participant Data	CodePartyData ServiceResponsibility	The Code Party which has accountability for the operation of a Market Data Service.	e.g. the SMRA operates the SMRS	

¹⁴ Concatenations are used in this Annex, Annex 6, 7 and 8 to denote an object class or data element name, so as not to be confused with capitalised REC defined terms.

Data Governance	DataGovernanceType	A classification of different controls applicable to an Energy Market Data Item.	The Data Management Schedule currently identifies a number of governance types, such as metadata owner, data master, data responsible user etc.	'Item Ownership' in the DTC is analogous to the Metadata Ownership Data Governance Type. ¹⁵
Data Governance	MarketServiceData Governance	A record of a Data Governance Type applicable to a Market Data Service.	Defines the data governance types that each data service can perform. e.g. a Gas Supplier can be a data master or a data responsible user but never a metadata owner	Currently BSC, MRA, SPAA and UNC are defined as owners of metadata.
Data Governance	DataItemDataGovernance	A Market Service Data Governance applicable to an Energy Market Data Item.	Each data item will have one or more market services performing a specific governance type. E.g. REC as the metadata owner of 'SupplyStartDate'.	
Data Item	DataTypeFormat	An attribute of an Energy Market Data Item or Data Type Format Rule which constrains its value.	e.g. JSON data types are String, Number, Boolean, Null, Array and Object; or DTC CHAR, NUM etc	DTC and RGMA Logical Format UNC Domain
Data Item	DataTypeFormatRule	A complex control which further constrains the value of an Energy Market Data Item.	e.g. A date value would be defined as a 'string' or 'NUM' data type format but would be further constrained by a specific value	DTC and RGMA Domains UNC – Contained within Description.

¹⁵ Item Ownership is defined in the SPAA catalogues as split between RGMA and Supplier, both will be defined as REC metadata owner.

			format such as YYYYMMDD	
Data Item	EnergyMarketDataItem	The atomic state of an attribute of an object.	e.g. 'Supply Start Date' is an attribute describing the day on which the object 'Registration' commences.	DTC and RGMA Data Item UNC Record/Field Name
Data Item	DataItemEnumeration	A permissible value for an Energy Market Data Item.	e.g. RMP Status has permissible values of Created, Operational, Dormant, Terminated.	DTC and RGMA Valid Set UNC – Contained within Description
Data Item	AssociationType	A classification of relationship types that exist between two Energy Market Data Items.	e.g. Data Items may be described differently within different data services but describe identical attributes of a common object, in some instances the values of those data items may require translation rules. e.g. a Market Participant Identifier may be defined as Supplier Identifier, Recipient Identifier, Initial Supplier, depending on the specific circumstances.	DTC and RGMA Alias and Synonym
Data Item	DataItemAssociation	A relationship between two Energy Market Data Items.	Defines the association type(s) that applies to each data item. For the majority of data items this is expected to be blank.	Instances of Alias / Synonym
Data Item	EnumerationAssociation	A relationship between the value of one Energy Market Data Item and	e.g. will define the association between values of two different data items and any	Rules and conditional associations within Annex C of DTC

		the value of another Energy market Data Item.	required transformation rules.	Notes included within RGMA DFC flows
Message	DataItemCollection	An association of an Energy Market Data Item to a Message Collection.	e.g. Asset Details includes the data items and associated population rules required to record details of an asset such as asset type (meter, converter etc) and other attributes.	DTC and RGMA – Data Group Item UNC - File Record
Message	MessageCollection	A title used to define a group of Energy Market Data Items for the purposes of Energy Market Messages.	e.g. separate groups of data items are specified for customer, address, asset and metering point details	DTC – Data Group UNC – File Record Name
Message	EnergyMarketMessageType	A classification of the heritage of an Energy Market Message.	e.g. types will include DTC, RGMA, UKLink, CSS	
Message	EnergyMarketMessage	A structured data interface sent from one Market Data Service to another Market Data Service.	e.g. D0150 in the DTC, ONJOB in RGMA, CNF in UKLink, Switching Request in CSS	DTC and RGMA Data Flow UNC – File Hierarchy
Message	MessageMeansType	A classification of the method by which it is permissible to transport an Energy Market Message from one Market Data Service to another Market Data Service.	e.g. DTN, IX, email	
Message	MarketMessageMeans	The prescribed Message Means Type that an Energy Market Message can be sent.	Messages can have more than one permissible means or none prescribed. e.g. gas and electricity domestic NOSI	Transfer mechanism defined in BSC, MRA and SPAA procedure documents

			messages must be sent via the DTN	
Message	MessageMetadataOwner	The Code responsible for the governance of an Energy Market Message.	e.g. will be one of DCUSA, SEC, REC, BSC, UNC, IUNC	DTC – Flow Ownership
Message	MessageInteractionVariant	A version of an Energy Market Message sent between two specific Market Data Services.	e.g. The ONUPD will have four variants, MAM to MAM, MAM to MAP, MAM to Gas Supplier and Gas Supplier to Gas Shipper.	Addresses in data terms some elements of DTC Annex C. Reflects message variants in RGMA.
Operational Activities	MarketScenario	A known set of conditions and / or code obligations which require one or more interactions between Market Data Services.	e.g. The replacement of a meter, the removal of a meter, the installation of a meter.	Addresses some conditional rules within DTC Annex C. Conditional use of RGMA and UK Link data flows
Message	MessageMarketScenario Variant	A version of an Energy Interaction Variant initiated within a Market Scenario	e.g. variants of the ONJOB sent because of a replacement, installation or removal	Addresses some conditional rules within DTC Annex C. Conditional use of RGMA and UK Link data flows
Message	MarketScenarioCollection	A set of conditions placed on a Message Collection when contained within a Message Market Scenario Variant.	e.g. determines the collections sequencing within a message and conditionality etc.	DTC and RGMA - Data Flow Group UNC – File Hierarchies
Message	MessageDataItem EnumerationRule	A permissible value for an Energy Market Data Item when contained within a Message Market Scenario Variant.	e.g. further constraints the permissible values of a data item when represented in a specific market scenario.	Addresses some conditional rules within DTC Annex C. Conditional use of RGMA and UK Link data items

Annex 8 – Data Specification Examples

Introduction

1.1. This annex provides some examples of how the metadata will be structured within the Data Specification; utilising current industry data items and market messages. These illustrative examples (for Energy Market Data Item data and Energy Market Message data) have been developed for persons with an understanding of existing industry data standards to aid interpretation of the logical data model presented in Annex 7.

1.2. Examples are not provided for all object classes within the Data Specification, modelled in Annex 7. Only those object classes that will be subject to development activities by Ofgem in Q1 2020 are included.

1.3. This document explains how data items, market messages and the governance of those assets will be structured.

1.4. The implementation of the Data Specification, by the REC Code Manager, will enable this information to be displayed in easy to consume formats such as data item and message catalogues, or diagrammatic views within the Energy Market Architecture Repository (EMAR), allowing it to be accessible to different types of user.

1.5. Existing DTC, RGMA and UKLink data has been used as a reference to aid comprehension.

Data Item Data

Energy Market Data Item Object Class

1.6. This object class contains data elements for an EnergyMarketDataItem, the existing industry electricity data item DCC Service Flag¹⁶ is used as an example in Table 1 below.

1.7. DCC Service Flag is an existing DTC data item. The Data Specification will retain the legacy DTCDataItemReference for backward compatibility, however, a new unique identifier will be created for all data items within the Data Specification.

1.8. The creation of an identification scheme for all object classes within the model will be undertaken by the REC Code Manager as part of the design of the EMAR.

¹⁶ <https://dct.mrasco.com/DataItem.aspx?ItemCounter=1833&searchMockItems=False>

Object Class: EnergyMarketDataItem - DCC Service Flag	
Data Element¹⁷	Value
DataItemId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataItemName	DCC Service Flag
DTCDDataItemReference	J1833
SPAADDataItemReference	
RGMADataItemReference	
UNCDDataItemReference	
IUNCDDataItemReference	
DataItemDefinition	A DCC provided flag to indicate the status of the services being provided by the DCC to a Metering Point.
DataItemFieldLength	1
DataFormatRuleId	[Enumerated Value Domain] ¹⁸
DataFormatId	[String]

Table 1. – DCC Service Flag Data Item data elements

Data Type Format Object Class

1.9. The example within Table 2 below, illustrates how each data type (e.g. string, boolean, indicator) will be represented within the Data Specification. Each EnergyMarketDataItem will be assigned a DataFormat as per Table 1.

Object Class: DataFormat – String	
Data Element	Value
DataFormatId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataFormatReference	String ¹⁹
DataFormatDefinition	String is a datatype which represents strings of symbols from standard character-sets. The syntax and semantics of the String

¹⁷ Data elements in bold text are mandatory attributes of each object class

¹⁸ The identification scheme has not yet been determined, for ease of understanding the reference or name data element is displayed in square brackets within each example, in place of the object class identifier which will be present in the physical database schema.

¹⁹ Analysis will be conducted in Q1 2020 to determine what data types are required to be defined within the Data Specification based on the requirements of migrating existing data formats and a requirement for harmonisation of the data types to standardised descriptions. No material change (i.e. impacting data values or validation) or loss of a data types descriptions precision will be made.

	datatype are as defined in ISO/IEC 11404:2007 10.1.5 Character String.
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Table 2. – DataTypeFormat related to DCC Service Flag data item.

Data Type Format Rule Object Class

1.10. Certain EnergyMarketDataItems, will be related to a DataTypeFormatRule if additional requirements are required for the purposes of populating the correct value and validation. This is similar to the existing Domains as represented within the DTC or text within the DESCRIPTION field provided within the UKLink Manual file format documentation.

1.11. Table 3 below demonstrates how DCC Service Flag will be assigned a DataTypeFormatRule of Enumerated Value Domain which will denote that only a certain set of values are permissible for validation purposes. This is similar to the Valid Set within the DCC.

Object Class: DataTypeFormatRule – Enumerated Value Domain	
Data Element	Value
DataTypeFormatRuleId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataTypeFormatRuleName	Enumerated Value Domain
DataTypeFormatRuleDefinition²⁰	Two or more permissible values exist for an EnergyMarketDataItem
UnitsOfMeasurement	
DomainValidation	Value must be a related DataItemEnumeration
DataTypeFormatId	[String]

Table 3. – DataTypeFormatRule related to DCC Service Flag.

Data Item Enumeration Object Class

1.12. If an EnergyMarketDataItem is described as having an enumerated value domain (a valid set as per DTC), each enumeration will be related by the DataItemEnumeration table. In the DCC Service Flag example the values A, S and W are permissible. The "A" enumeration is illustrated in Table 4 below.

Object Class: DataItemEnumeration – Active

²⁰ Data Type Format Rules will be developed Q1 2020.

Data Element	Value
DataItemEnumerationId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataItemId	[DCC Service Flag]
EnumerationValue	A
EnumerationDescription	Active

Table 4. – DataItemEnumeration Active Status enumeration for DCC Service Flag

Data Item Association Object Class

1.13. An advantage of the Energy Market Data Specification is that data which shares a common lineage (but was previously described differently under different catalogues / codes) or requires the application of transformation rules between each data item, can be represented within the model.

1.14. For the example of the electricity DCC Service Flag, this data item is associated to a gas equivalent and, via a set of transformation rules, the new CSS data item dccServiceIndicator, which is sent to the CSS from the ERDS and GRDA when they receive an update to DCC Service Flag.

1.15. This association via the DataItemAssociation Object Class is provided in Table 5 below.

Object Class: DataItemAssociation – DCC Service Flag and dccServiceIndicator	
Data Element	Value
DataItemAssociationId	The identification scheme for the Data Specification will be created by the REC Code Manager
PrimaryDataItemId	[DCC Service Flag]
SecondaryDataItemId	[dccServiceIndicator]
AssociationDescription	DCC Service Flag is transformed by the ERDA and GRDA for provision to the CSS
AssociationTransformationRule	As EnumerationAssociation
AssociationTypeId	[Transformation]

Table 5. – DataItemAssociation – The relationship of DCC Service Flag (current DTC data item) to dccServiceIndicator (a CSS data item).

Data Item Association Type Object Class

1.16. A number of DataItemAssociationTypes will be developed within the model. For example, the DTC currently has concepts of alias and synonym.

1.17. In the example provided within Table 6. The type Transformation will be developed to support the association illustrated in Table 5.

Object Class: AssociationType – Transformation	
Data Element	Value
AssociationTypeId	The identification scheme for the Data Specification will be created by the REC Code Manager
AssociationTypeName	Transformation
AssociationTypeDescription	The value of the primary data item must be transformed by the associationTransformationRule to be represented as the value of a secondary data item or vice versa.

Table 6. – AssociationType – Example of an AssociationType for a DataItemAssociation Enumeration Association Object Class

1.18. A DataItemEnumeration (Table 4) can be related to another DataItemEnumeration , in this example, four enumeration associations will exist for the DataItemAssociation (Table 5) of DCC Service Flag (Values A, S, W and NULL) and dccServiceIndicator (true or false), an example of one EnumerationAssociation is provided in Table 7 below.

1.19. A TransformationRule will be documented for each EnumerationAssociation, the standards for how this will be documented will be developed in Q1 2020. Consideration needs to be given to how UK Link, DTC, RGMA define data related business rules and validation rules currently.

Object Class: EnumerationAssociation – Active and true	
Data Element	Value
EnumerationAssociationId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataItemAssociationId	[Table 5]
PrimaryDataItemEnumerationId	[the DataItemEnumeration for DCC Service Flag as reflected in Table 4]
PrimaryDataItemEnumerationValue	A
SecondaryDataItemEnumerationId	[the associated DataItemEnumeration for dccServiceIndicator as per format of Table 4]
SecondaryDataItemEnumerationValue	true
TransformationRule	Is equal to

Table 7. – EnumerationAssociation – utilising the example of the active value DCC Service Flag enumeration and the Boolean enumeration of true for dccServiceIndicator

1.20. Each EnergyMarketDataItem will be related to one or more instances of a DataItemDataServiceGovernance.

1.21. A number of DataGovernanceType (see logical data model diagram in Annex 7) will be created as defined within the REC Data Management Schedule.

1.22. A MarketDataService (each referenced by the existing MarketRoleCode governed by the BSC and UNC) will be related to a DataGovernanceType as a MarketServiceDataGovernance.

1.23. An example of a DataItemDataServiceGovernance related to DCC Service Flag is provided in Table 8 below.

Object Class:DataItemDataServiceGovernance – Data Master / DCC Service Flag	
Data Element	Value
DataItemDataServiceGovernanceId	The identification scheme for the Data Specification will be created by the REC Code Manager
EnergyMarketDataItemId	[DCC Service Flag]
MarketServiceDataGovernanceId	[Data Master is Smart Metering Data Service]

Table 8. –DataItemDataServiceGovernance – This example defines the Smart Metering Data Service as the Data Master for DCC Service Flag.

Market Message Data

1.24. Market Message data will be structured so that the existing messaging standards can be represented in a common manner.

1.25. The physical structures of the messages and any specific requirements for transportation over communication networks will be detailed within external documentation, such as the UKLink Manual or the DTN User File Design Specification.

Energy Market Message

1.26. Within these examples the ONUPD²¹ message is utilised as an example. This is defined within the RGMA under SPAA and as a UKLink File (*.UPD).²²

1.27. This object class appears at the top of the Market Message hierarchy, enabling Market Messages that share the same lineage to be associated whilst supporting variants of that

²¹ <https://www.spaa.co.uk/rgma-data-flows/>

²² https://xoserve.sharepoint.com/:x:/r/sites/UKLink/_layouts/15/Doc.aspx?sourcedoc=%7BDE95070B-618D-4545-BD6B-B40FF04AB967%7D&file=UPD%20Hierarchy%20V5L.xlsx&action=default&mobileredirect=true

message, which may be governed under different codes, such as the ONUPD which has variants governed under the REC and variants governed under UNC.

1.28. Table 9 below provides an example of how the ONUPD is structured.

Object Class: EnergyMarketMessage - ONUPD	
Data Element	Value
EnergyMarketMessageId	The identification scheme for the Data Specification will be created by the REC Code Manager
MessageName	Notification of Metering Details Update (ONUPD)
MessageDescription	This flow is used to notify the recipient of updated metering related details.

Table 9. – EnergyMarketMessage – ONUPD utilised as an example Message Interaction Variant

1.29. Each instance of an EnergyMarketMessage sent between a Market Data Service to another Market Data Service will be a MessageInteractionVariant.

1.30. The example provided in Table 10 is an ONUPD sent between MAM and MAP.

Object Class: MessageInteractionVariant – MAM to MAP ONUPD	
Data Element	Value
MessageInteractionVariantId	The identification scheme for the Data Specification will be created by the REC Code Manager
EnergyMarketMessageId	[Notification of Metering Details Update (ONUPD) – Table 9]
EnergyMarketMessageTypeId	[RGMA – see Logical data model diagram] ²³
SourceMarketRoleCode	[MAM – see Logical data model diagram]
TargetMarketRoleCode	[MAP – see Logical data model diagram]

Table 10. – MessageInteractionVariant – MAM to MAP ONUPD

²³ Example object classes for EnergyMarketMessageType and MarketDataService are not included in this document, the values for the MarketRoleCode will be the role codes governed by the UNC and BSC. The EnergyMarketMessageType will reference the standard – such as DTC, RGMA, UKLink etc.

Market Message Means

1.31. This object class will define a means by which a message can be conveyed, for example DTN, IX, CSS API etc.

1.32. The MAM to MAP ONUPD example does not, under code, specify a means by which an ONUPD must be conveyed between those parties, so this object class would not be utilised under this scenario.

1.33. In examples such as messages to and from the CSS, the means would be specified as CSS API or messaging between the SMRS and Energy Suppliers would be specified as DTN.

Message Metadata Ownership

1.34. Each MessageInteractionVariant will be assigned a Metadata Owner. This will reference the code by which the message metadata is governed.

1.35. In the example of the MAM to MAP ONUPD message, the RECCo will be defined as the Metadata Owner. Table 11 illustrates the structure of this object class.

Object Class: MessageMetadataOwnership – REC / ONUPD	
Data Element	Value
MessageMetadataOwnershipId	The identification scheme for the Data Specification will be created by the REC Code Manager
MessageInteractionVariantId	[Table 10]
MarketRoleCode	[RECCo]

**Table 11. – MessageMetadataOwnership – RECCo governed ONUPD message
Message Market Scenario Variant**

1.36. A MessageInteractionVariant will be defined to a lower level of granularity as a single MessageMarketScenarioVariant or as many MessageMarketScenarioVariant.

1.37. This lower level of detail enables specific message structures, business rules and validation rules; which are only to be applied under certain conditions, to be represented via the related object classes of MarketScenarioCollection (Table 13) and MessageDataItemEnumerationRule (which will enable condition rules for which enumerations are permissible within a specific MessageMarketScenarioVariant) .

1.38. For example, the MAM to MAP MessageInteractionVariant, is currently defined in RGMA as four MessageMarketScenarioVariants covering MAM appointment / de-appointment and asset removal /installation.

1.39. For illustrative purposes Table 12 references the MAM de-appointment²⁴ market scenario.

1.40. In terms of existing electricity data flows; it is proposed that much of the additional text in Annex C of the DTC²⁵ will no-longer be required as the business rules represented in that document can be incorporated within the new data structure without the need for explanatory text.

Object Class: MessageMarketScenarioVariant – MAM De-appointment	
Data Element	Value
MessageMarketScenarioVariantId	The identification scheme for the Data Specification will be created by the REC Code Manager
MessageInteractionVariantId	[Notification of Metering Details Update (ONUPD)]
MarketScenarioId	[De-appointment of MAM]
MessageMarketScenarioVariantName	Notification of MAM De-appointment to MAP
MessageMarketScenarioVariantDescription	This flow is sent from the MAM to the MAP to indicate that they are no longer the MAM for the meter point following de-appointment by the Supplier.
LegacyMessageReference	G0602
LagacyMessageName	Notification of MAM De-appointment to MAP (ONUPD)

Table 12. – Example of the Notification of Metering Details Update (ONUPD) sent between MAM and MAP following the de-appointment of a MAM

Market Message Structure Data

1.41. A number of object classes exist within the model which define the structure and contents (the specific data items) of MessageMarketScenarioVariant (Table 12).

1.42. The structure of DataItemCollection, MessageCollection and MarketScenarioCollection object classes enables messages and data item data to be related to one another.

Message Market Scenario Collection

1.43. This object class defines how each Message Collection is structured within each MessageMarketScenarioVariant.

²⁴ <https://www.spaa.co.uk/rgma-data-flows/>

²⁵ <https://dtc.mrasco.com/ListAnnexes.aspx>

1.44. Using the example of the current UKLink UPD File; 'ASSET'²⁶ is defined as a Message Collection that can appear in a message one or many times (1 to n), whereas the Message Collection 'METER POINT' must appear once and only once.

1.45. Table 13 below provides an example of the 'ASSET' MessageMarketScenarioCollection which exists within an UPD flow. This also incorporates the existing UKLink 'File Hierarchy' requirements.

Object Class: MessageMarketScenarioCollection – Asset / UPD	
Data Element	Value
MessageMarketScenarioCollectionId	The identification scheme for the Data Specification will be created by the REC Code Manager
MessageCollectionId	[ASSET Table 14]
MessageMarketScenarioVariantId	[Shipper to CDSP UPD as per structure of Table 12]
ParentMessageCollectionId	[MTPNT as per structure of Table 14]
CollectionLevelNumber	3
MessageCollectionModality	1
MessageCollectionCardinality	n

Table 13. – MessageMarketScenarioCollection – example of ASSET within an UPD. Message Collection

1.46. This object class provides a link between a DataItemCollection and a MarketScenarioMessageCollection.

1.47. The example of ASSET is provided below in Table 14.

Object Class: MessageCollection – Asset / UPD	
Data Element	Value
MessageCollectionId	The identification scheme for the Data Specification will be created by the REC Code Manager
MessageCollectionReference	ASSET
MessageCollectionName	ASSET
MessageCollectionDescription	DATASET_GROUP_ASSET

Table 14. – MessageCollection – An example of how the existing Asset group would be structured

²⁶ https://xoserve.sharepoint.com/:w:/r/sites/UKLink/_layouts/15/Doc.aspx?sourcedoc=%7B5210096E-EE77-4E7A-BEDA-93324F55D9A5%7D&file=UPD%20Dataset%20V14L.docx&action=default&mobileredirect=true

1.48. An example of an electricity DTC Message collection, using the meter group in non-half hourly meter technical details flow (D0150)²⁷; the MessageCollectionReference value would be 290 and the MessageCollectionName would be Meter/Retrieval Method Details.

Data Item Collection

1.49. The Data Item Collection object class creates the relationship between an EnergyMarketDataItem and a MessageCollection.

1.50. An example is provided in Table 15 below, for the data Item “Serial Number” which is part of the “Asset” Message Collection

Object Class: DataItemCollection – Serial Number / Asset	
Data Element	Value
DataItemCollectionId	The identification scheme for the Data Specification will be created by the REC Code Manager
DataItemId	[Serial Number]
MessageCollectionId	[ASSET]
DataItemSequenceNumber	11
DataItemConditionalIndicator	false
DataItemConditionalRule	

Table 15. – DataItemCollection – the data item Serial Number within a defined MessageCollection of ASSET.

²⁷ <https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0150&FlowVers=1&searchMockFlows=False>