



D-4.1.5 E2E Solution Architecture

Ofgem Switching Programme

Decision

Overview:

The goal of the E2E Solution Architecture product is to bring together the various E2E Design products of the DLS Phase into a single To-Be (Target) architectural view. This product highlights the high-level impact of transformation (enhancements, modifications) to the business processes, IT systems, data services and interfaces of the GB industry stakeholders that underpin the E2E Switching Arrangements in the GB Energy market.

Associated documents

References are shown in the following format: Ref.[09].

REF.	DOCUMENT TITLE OR NAME	VERSION / DATE
01	D-1.1 Architectural Principles	As of 29/09/2017
02	D-4.1.2 E2E Detailed Design Model (ABACUS Switching Design Repository) Note that this product also fulfils D-4.1.3 Data Architecture and Data Governance	As of 29/09/2017
03	D-4.1.4 E2E Switching Arrangements NFR	As of 29/09/2017
04	D-4.1.6 E2E Operational Choreography	As of 29/09/2017
05	D-4.1.7 Technology and Communications Standards	As of 29/09/2017
06	D-4.1.9 E2E Switching Service Management Strategy	As of 29/09/2017
07	D-4.1.10.1 E2E Security Architecture	As of 29/09/2017
08	D-4.3.3 E2E Testing Plan	As of 29/09/2017
09	D-4.3.4 E2E Transition Plan	As of 29/09/2017
10	D-4.3.6 E2E Data Migration Plan	As of 29/09/2017
11	Switching Programme – Strategic Outline Case (Ofgem issued document)	19/01/2017
12	Product Description for D_4.1.5_E2E_Solution Architecture 30032017	30/03/2017
13	D- 4.1 – DB2 E2E Design Assumptions	07/08/2017
14	Review of CSS/MIS Communications Options - Ref. no: 370-D-002Av4 (Mason Advisory)	19/05/2017
15	MRASCo Data Transfer Catalogue See www.mrasco.com for access to the full catalogue	N/A
16	SPAA – RGMA Data Flow Catalogue See www.spaa.co.uk for access to the full catalogue	N/A
17	DLS Switching Programme Defined Terms	V0.4 (please use latest available)

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1. Executive Summary

1.1. The End-to-End (E2E) Solution Architecture is a key product deliverable of the Detailed Level Specifications (DLS) Phase of the Ofgem Switching Programme. The E2E Solution Architecture summarises the products of the DLS Phase which describe the high-level business processes, IT systems, data services and interfaces, service operations and security modifications needed to deliver the E2E Switching Arrangements to the GB industry to support Ofgem's Energy Supplier Switching reforms.

1.2. The E2E Solution Architecture presents the high-level impacts of the new Switching Arrangements in the following sections:

- Network & Communications
- Data Services Architecture
- CSS Architecture Input
- Data Architecture.

2. Introduction

Goals and Objectives

2.1. The goals of the E2E Solution Architecture are to:

- Summarise the D-4.1 E2E Switching Arrangements Design and in particular the impact on Central Data Services and Market Participants' systems of the new switching arrangements.
- Describe the end-to-end architecture.

2.2. The E2E Solution Architecture presents these high-level impacts as::

- Network & Communications
- Data Services Architecture
- CSS Architecture Input
- Data Architecture.

2.3. This document refers to other documents from the set comprising the D-4.1 E2E Switching Arrangements Design for supporting detail, where necessary.

Scope

2.4. This document identifies the E2E Solution Architecture required to support the chosen reform package (RP2A) for switching arrangements, as summarised in Fig 1. Further detail describing the Ofgem switching programme and its objectives can be found in Ref.[11]: Switching Programme – Strategic Outline Case.

2.5. This document identifies the components of the E2E Switching Arrangements in terms of IT systems and services, and the interfaces between those systems that are necessary to underpin the target business processes, as specified in the (ABACUS) Switching Design Repository, Ref.[02] - D-4.1.2 E2E Design Models. This includes:

- The name and the purpose of each of the systems/services (e.g. CSS – undertaking the processes as set out in the Business Processes) – [link](#).
- Set out the role and responsibilities of the industry actors and their respective systems/services (e.g. Suppliers, Gas Transporters) – [link](#).
- The directional flow of data [between the various systems](#) and if considered appropriate, the communication pattern for data transmission.

2.6. This product will feed into the design of the CSS and all other systems in the new switching arrangements.

2.7. Where required, the Solution Architecture document provides references to other DLS products for further detail, including:

- Ref.[02] - D-4.1.2 E2E Design Models - the ABACUS Switching Design Repository which provides the To-Be switching model describing:
 - Target business processes required in the To-Be switching arrangements
 - The data architecture including logical data models and interface specifications required to support the To-Be E2E solution
 - Interaction sequence diagrams, demonstrating the sequence of interactions between components within a business process
- Ref.[04] - D-4.1.6 E2E Operational Choreography, which describes the dependencies between system-to-system interactions.
- The approach to security and privacy design, contained in Ref.[07]. D-4.1.10.1 E2E Security Architecture
- Ref.[06] - D-4.1.9 E2E Switching Service Management Strategy, detailing the operational service model.
- Specific implementation requirements, guidelines and expectations for implementers will be provided in Ref.[07] - D-4.1.7 Technology and Communications Standards.
- Ref.[08] - D-4.3.3 E2E Testing Plan, which explains the programme's test strategy for ensuring compliance with agreed functional and non-functional requirements (see Ref.[04] – D-4.1.4 Non-Functional Requirements).
- The programme's strategy for migration to, and implementation of, the new switching arrangements – in Ref.[09] D-4.3.4 E2E Transition Plan and Ref.[10] - D-4.3.6 E2E Data Migration Plan.

2.8. Where possible, information regarding the impact of change is provided, however the following areas will require further during the CSS Detailed Design:

- The impact on existing system-to-system interfaces within scope of the To-Be switching arrangements, but which do not involve CSS – see A003.
- The underlying technical architecture of individual systems within the E2E switching arrangements – see A002.
- Requirements for Reporting/MI are not yet fully defined, although there are known requirements in the areas of service management, participant performance and market trends. Additional work will be undertaken during CSS Detailed Design, to fully define the requirements in this area and assess the impact on individual components and the solution as a whole.
- Target Network and Communications solution will be fully defined during the CSS Detailed Design.

3. E2E As-Is Current Architecture

Current Business Process Context

3.1. This section presents a high-level view of the current switching process within the gas and electricity industries – further detail regarding these processes and the operational choreography required to coordinate the end-to-end switching process can be found in Ref.[04].

Electricity Industry

3.2. NOTE: A high-level industry overview of the switching process is presented in this section - detailed information regarding the As-Is business processes for Switching is difficult to represent in a meaningful way and is best viewed via the MRASCo website (<https://www.mrasco.com>).

3.3. The detailed process for Non-Half Hourly consumers can be found here:

<http://cwgemserv.northeurope.cloudapp.azure.com/evolve/statics/yojd3o3x/index.html#/cwtype=singleandcwview=diagramandcwid=104>

3.4. The detailed process for Half-Hourly consumers can be found here:

<http://cwgemserv.northeurope.cloudapp.azure.com/evolve/statics/yojd3o3x/index.html#/cwtype=singleandcwview=diagramandcwid=153>

3.5. These processes are summarised in the following diagrams.

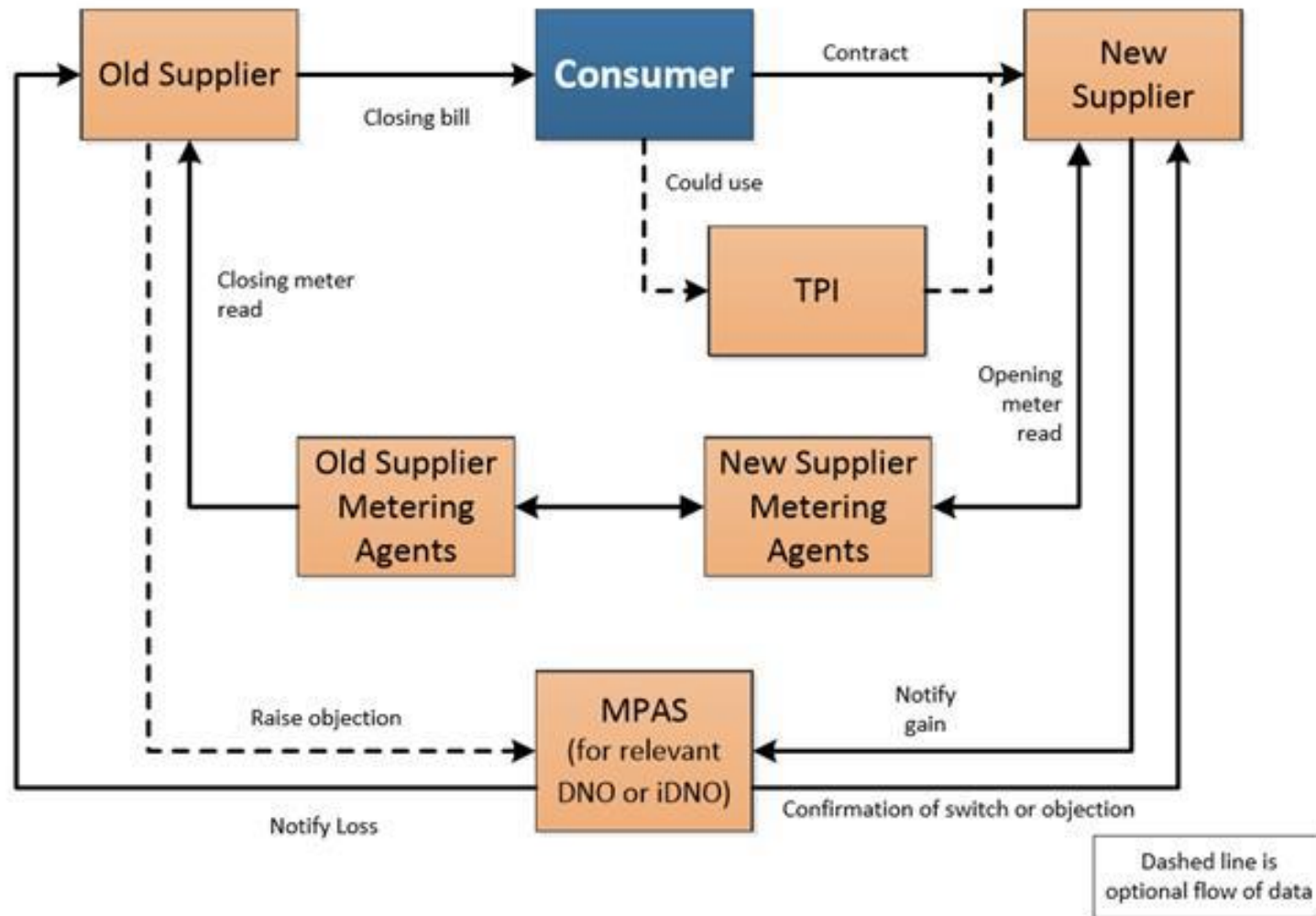


Figure 1 – Electricity Change of Supplier [Ofgem]

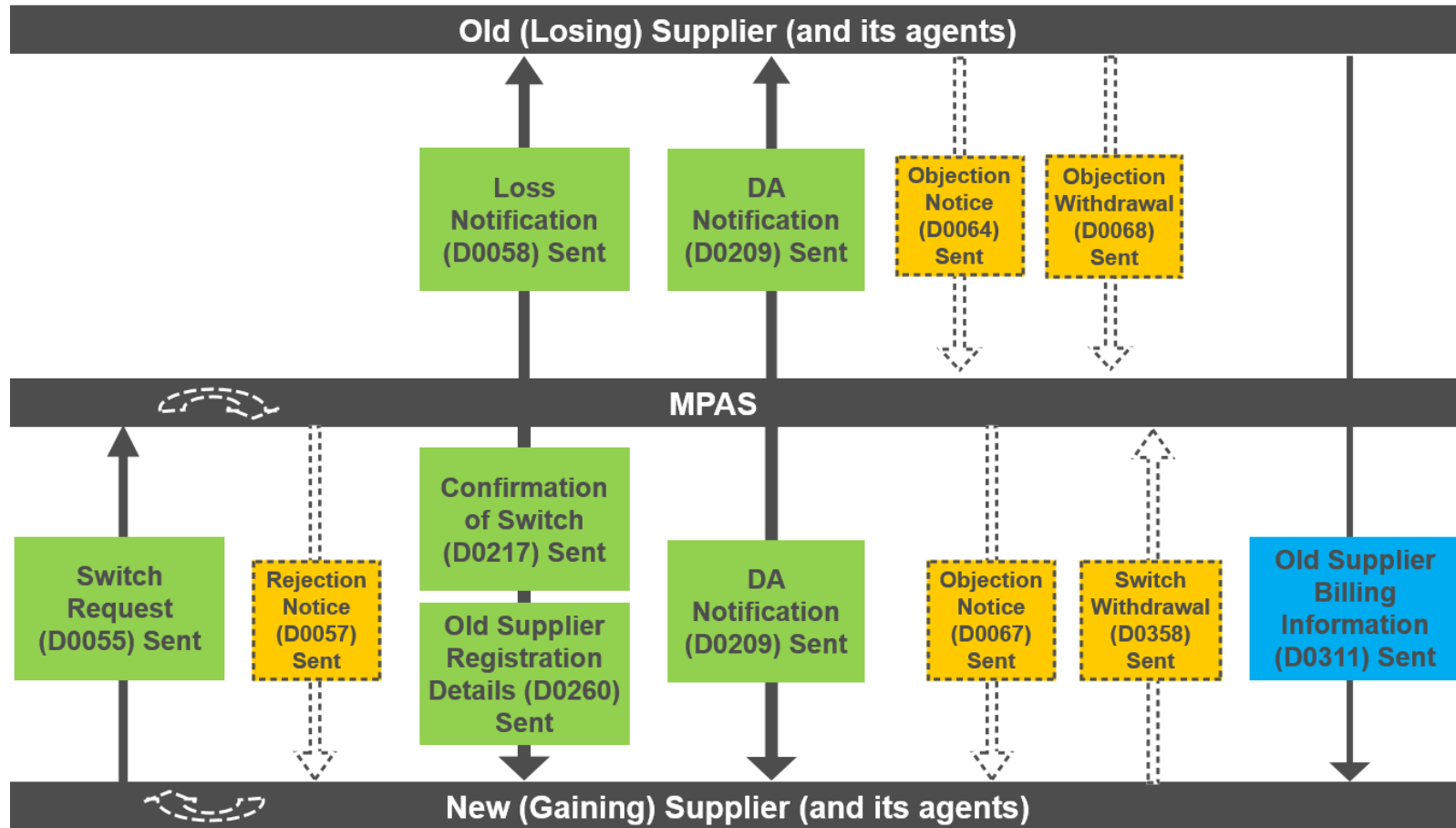


Figure 2 – Electricity Change of Supplier [Gemserv]

3.6. The as-is process can be summarised as follows:

- Initial quotation - Consumer obtains a quote from the market in one of the following methods:
 - By direct engagement with existing or new supplier to obtain new tariff
 - Through a Third-Party Intermediary (TPI) such as a Price Comparison Website (PCW) or an energy broker
- Submission of Switch Request, Cooling-off period and objections – total (14 working days). At this point the process enters a 'Cooling-Off' period of 14 days (elapsed) during which the consumer can choose to cancel the request outright, or cancel it and re-submit another request to move to a different tariff from their existing supplier or a new supplier. The following activities take place during the Cooling-Off window:
 - Consumer initiates the Switch Request process and the Gaining Supplier submits the corresponding Registration of Supplier to Specified Metering Point (D055) request to Meter Point Administration Service (MPAS). Please refer to www.mrasco.co.uk for full details of existing data flows (D flows) within the Electricity industry.
 - MPAS notifies the Losing Supplier via the D055 request.
 - The Losing Supplier processes the request and has 5 working days from receipt in which to review and reject the registration request (the 'Objection Window') by sending a Rejection Notice (D057) to MPAS.
- If no objection is received, then MPAS carries out the following activities:
 - Issues a Loss Notification (D058) to the Losing Supplier
 - Processes the CoS and registers the meter to the Gaining supplier.
 - Issues Confirmation of Switch Notice (D0217) to the Gaining Supplier
 - Advises the Gaining Supplier of the Losing Supplier's registration details for the meter via a Notification from MPAS of Old Supplier Registration Details (D0260) notice
- MPAS issues an Instruction(s) to Non-Half Hourly or Half Hourly Data Aggregator (D209) notice to Data Aggregators covering appointment details for Data Aggregator/Data Collector and details of Registrations, Measurement Class, Energisation Status, Line Loss Factor Class, and for NHHDA Profile Class/Standard Settlement Configuration.
- Gaining Supplier appoints new Supplier Metering Agents who issue opening meter readings
- Losing Supplier undertakes all steps necessary to close the Consumer's account and any associated contracts:
 - Metering Agents are de-appointed as appropriate
 - Gaining Supplier is notified of the Customer's billing information through a Notification of Old Supplier Information (D0311) notice
 - Final meter reads are requested so that a closing bill can be issued, and the consumer's account closed.

At this point the switching process is deemed to have been completed.

Current Electricity Switching Arrangements – Actors

3.7. The table lists the actors who participate in the current switching arrangements for the electricity industry – please refer to Ref.[17] – DLS Switching Programme Defined Terms for the latest available description of each participant.

NAME	ROLE IN THE TO-BE SWITCHING PROCESS
Consumer	Initiates the switching process and decided who the new supplier will be.
DC/DA	Both DCs and DAs provide meter reading / consumption data which is required by suppliers for billing purposes.
DCC	Updates Smart Meter registration status and relationship data to reflect change of supplier, agent etc. as part of the switching process.
Distribution Network Operator	The DNOs maintain the registration data for electricity metering points and provide this information to the DCC Data Service via the RDP service through MPRS.
Electricity Central Online Enquiry Service (ECOES)	Allows triangulation of Consumer and MPAN data if required within the switching process.
Gaining Supplier	Submits the initial Switch Request to MPAS and handles subsequent actions required to complete contract including transfer of meter assets etc. Agree contract with new Consumer. Carry out pre-switch validation and issues Switch Request. The Gaining Supplier can also withdraw its Switch Request up until the second working day before the Supply Start Date. May be required to appoint agents to perform activities including ongoing meter reading and aggregation of settlement data as part of the switch process.
Losing Supplier	Processes (or rejects) the Switch Request and initiates processes required to terminate the Consumer contract, which may include de-appointing agents. The Losing Supplier has the opportunity to submit an objection (under the terms of the Supply License) within the Objection Raising Period and can withdraw any objection made within the Objection Resolution Period.
Meter Asset Provider (MAP)	Provides meter asset costs to the energy supplier.
Meter Operator (MOP)	Appointed by the supplier as part of the switching process, however the supplier may choose to maintain the existing MOP as part of the switch. MOP provides meter management costs to supplier.
Meter Point Registration System (MPRS)	Handles the process flows for switching electricity supplier. Where the MPRS provider receives a valid Switch Request from the New Supplier it will notify the New Supplier, New Suppliers Data Aggregator (DA), the Old Supplier and Old Suppliers DA within 1 day.
TPI (Third Party Intermediary) e.g. Price Comparison Website (PCW) or Broker	Allows consumers to compare tariffs from multiple suppliers and to initiate the switching process.

Gas Industry

3.8. The following diagram shows a simplified high-level process flow of the switching process in the gas industry.

3.9. NOTE: Detailed information regarding the As-Is business processes for supplier switching within the gas industry is best viewed via the SPAA website (<https://www.spaa.co.uk>).

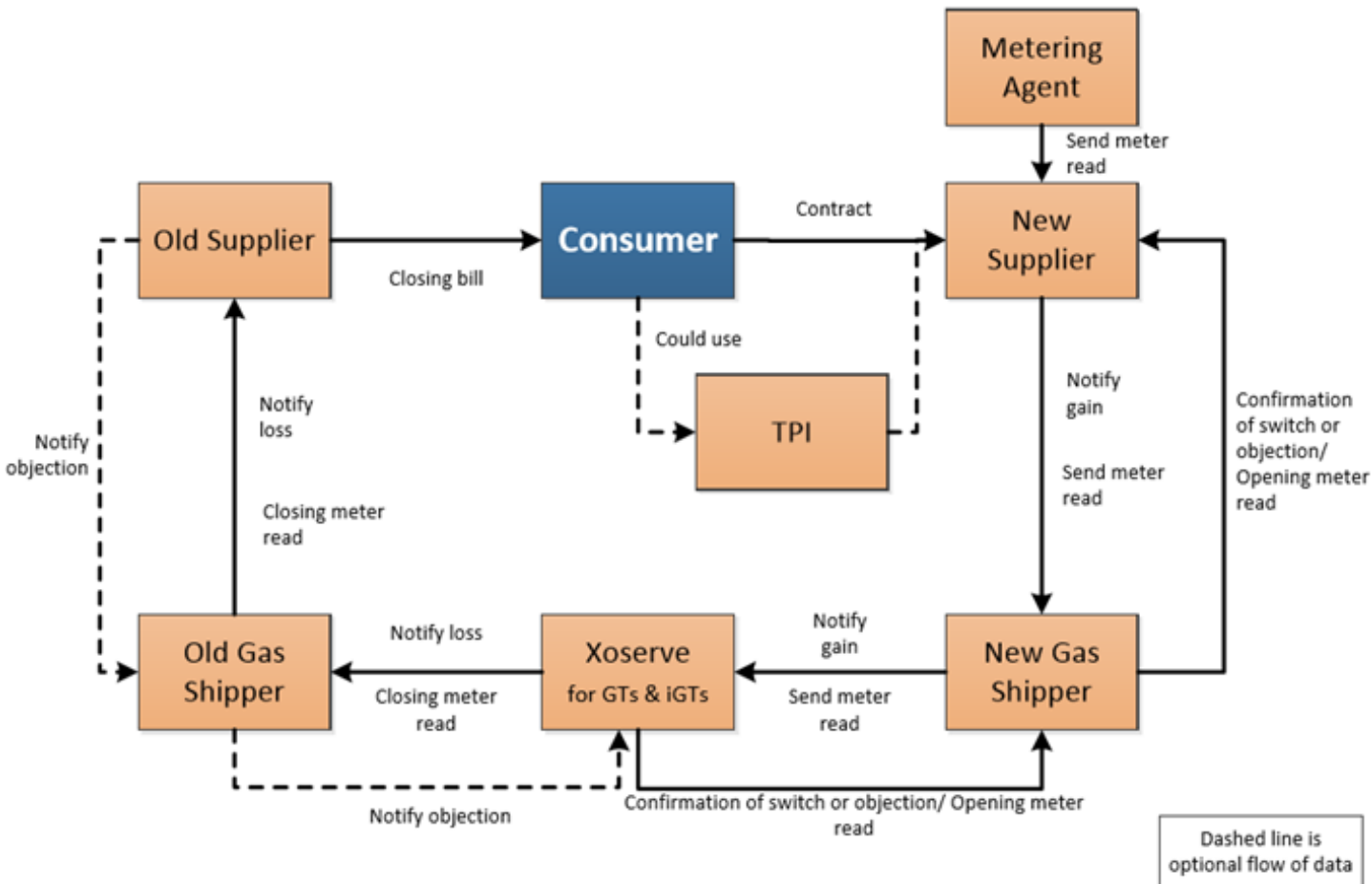


Figure 3 – Gas – Change of Supplier [Ofgem]

3.10. Additional detail describing the process flow and interactions between participants in more detail, is shown in the next diagram (supplied by Xoserve).

D-4.1.5 E2E Solution Architecture Ofgem Switching Programme

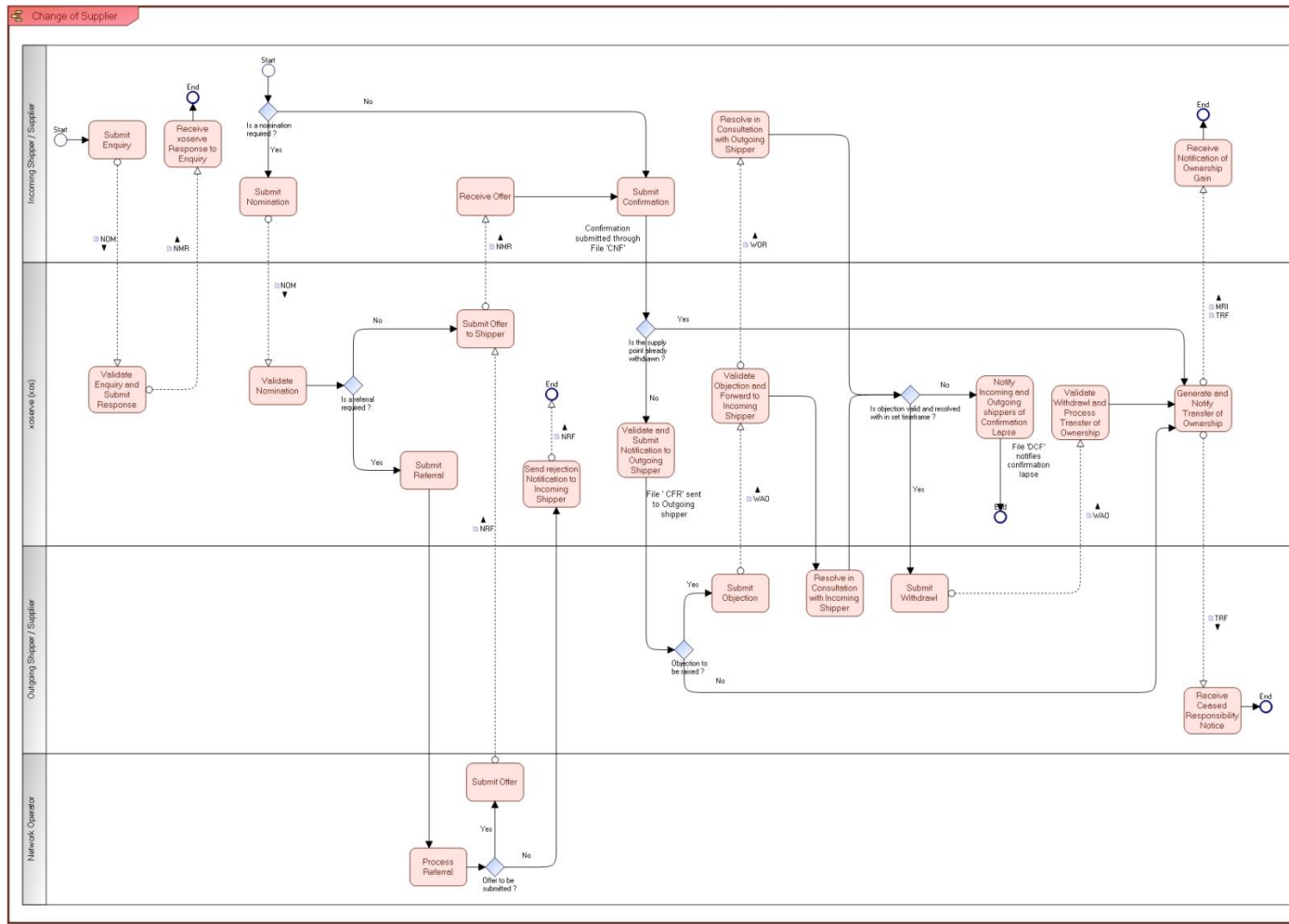


Figure 4 – Gas – Change of Supplier [Xoserve]

3.11. The as-is process flow contains these steps.

- a. Initial quotation - Consumer obtains a quote from the market in one of the following methods:
 - i. By direct engagement with existing or new supplier to obtain new tariff,
 - ii. or through a Third-Party Intermediary (TPI) such as a Price Comparison Website (PCW) or an energy Broker
- b. Gaining Supplier to Gaining Gas Shipper: Notify gain /send meter read
- c. Gaining Shipper to Xoserve: Notify of gain/send meter read
- d. Xoserve to Losing Gas Shipper: Notify of loss / closing meter read
- e. Losing Shipper to Losing Supplier: Notify of loss / closing meter read, OR
 - i. Losing Supplier to Losing Gas Shipper: Notify of objection
 - f. Losing Gas Shipper to Xoserve: Notify of objection
- g. Losing Supplier undertakes all steps necessary to close the Consumer's account and any associated contracts:
- h. At this point the switching process is deemed to have been completed.

Current Gas Switching Arrangements - Actors

3.12. The table lists the actors in the current switching arrangements for the gas industry, please refer to Ref.[17] – DLS Switching Programme Defined Terms for the latest available description of each participant

NAME	ROLE IN SWITCHING PROCESS
Customer	Initiates the switching process and decided who the new supplier will be.
DCC	Updates Smart Meter registration status and relationship data to reflect change of supplier, agent etc. as part of the switching process.
Data Enquiry Service (DES)	Allows triangulation of Consumer and supply meter point data if required within the switching process.
Gaining Supplier	Agree contract with new Consumer. Carry out pre-switch validation and issues Switch Request. May be required to appoint agents to perform activities including ongoing meter reading and aggregation of settlement data as part of the switch process.
Losing Supplier	Effects processes required to close (the lost) Consumer account and terminate contract.

NAME	ROLE IN SWITCHING PROCESS
	May be required to de-appoint agents to perform activities including providing closing meter readings and settlement data as part of the switch process.
Gas Transporter	Provides gas transportation charges to the energy supplier.
Meter Asset Provider (MAP)	Provides meter asset costs to the energy supplier.
Meter Asset Manager (MAM)	Appointed by the supplier as part of the switching process, however the supplier may choose to maintain the existing MOP as part of the switch. MOP provides meter management costs to supplier.
TPI (Third Party Intermediary) e.g. Price Comparison Website (PCW) or Broker	Allows consumers to compare tariffs from multiple suppliers and to initiate the switching process.
Gaining Shipper	Submits the initial Switch Request in the current as-is arrangements, for processing into UK Link. Handles subsequent actions required to complete contract including transfer of meter assets etc. The Gaining Supplier can also withdraw its Switch Request up until the second working day before the Supply Start Date.
Losing Shipper	Receives Switch Request and decides whether to object or to process it. The Losing Supplier has the opportunity to submit an objection (under the terms of the Supply License) within the Objection Raising Period and can withdraw any objection made within the Objection Resolution Period.
UK Link (Xoserve)	Coordinates the switching related process flows and interactions between Suppliers and Gas Shippers. Provides registration data to DCC Data Service in their role as RDP for Gas. Also provides facilities to update sites and meters information in a controlled manner.

Current Data Services Context

3.13. The following diagram shows the Data Services which are involved in supporting the as-is switching process for gas and electricity.

D-4.1.5 E2E Solution Architecture Ofgem Switching Programme

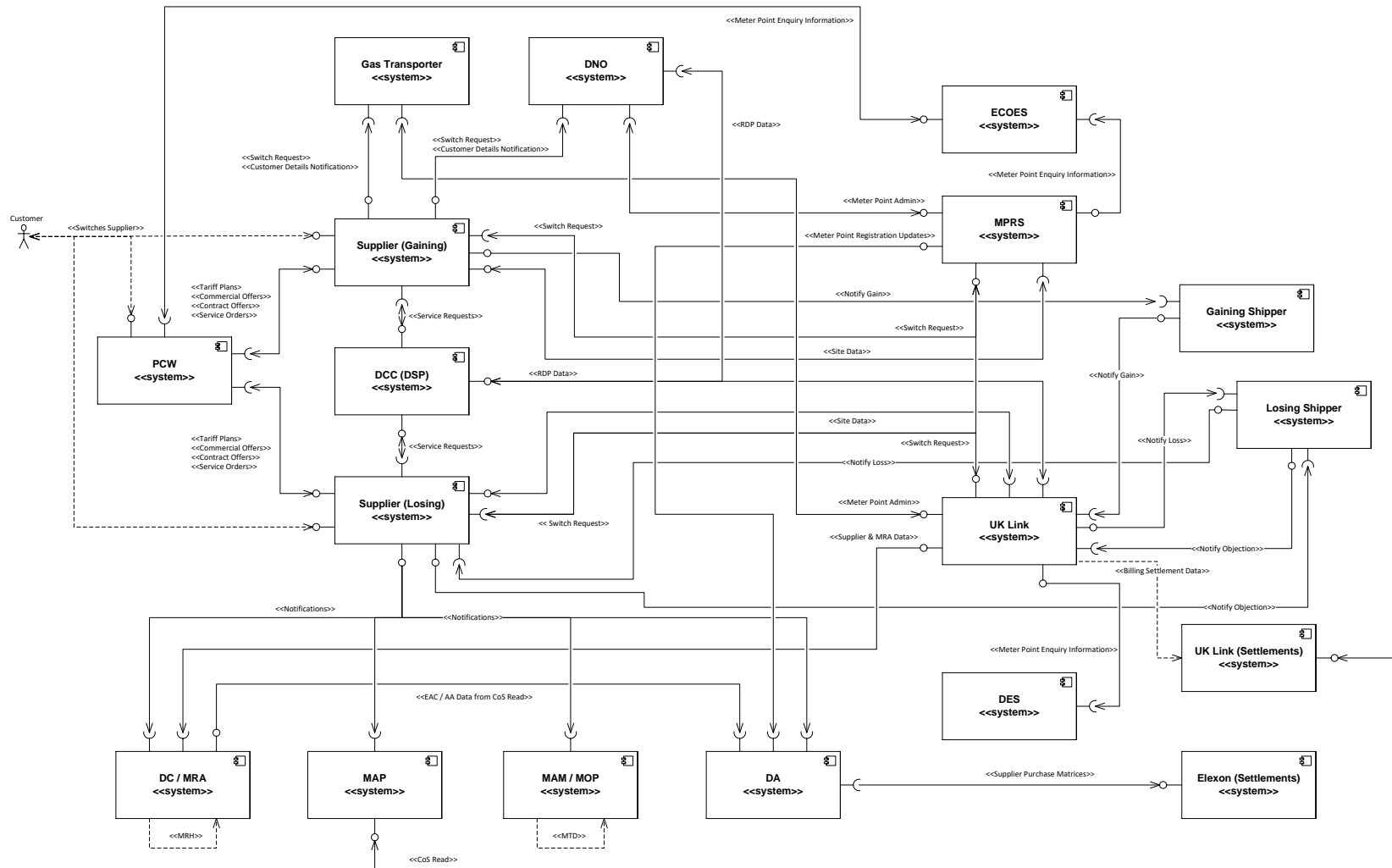


Figure 5 – E2E Switching System / Application Architecture (As-Is)

3.14. Note the following conventions which are used for all UML type diagrams in this document:

- This symbol represents an outbound system interface, from which data is sent to another system.
- ◐ This symbol represents an inbound system interface, which receives data from another system

Figure 6 – Interface Notation Conventions

4. E2E To-Be Target Architecture

Solution Overview

- 4.1. The Electricity and Gas Industries operate within controlled arrangements of regulations, business-to-business (B2B) digital interactions and supporting central data services. The regulator is seeking to optimise these arrangements, facilitating a faster, more reliable switching process and delivering commercial benefits to energy consumers.
- 4.2. An end-to-end model of the new arrangements has been developed that brings together industry policy, organisations, business processes, data services, data definitions and B2B digital interactions into a cohesive design. This model is contained within Ref.[02].
- 4.3. Separately a risk assessment has been conducted to determine high-level security requirements. Relevant non-functional requirements have also been identified and are available in Ref.[03].
- 4.4. The To-Be solution will be based around a new CSS, which will enable a revised set of switching business processes, harmonising the arrangements across Gas and Electricity where possible and delivering a faster, more efficient and more reliable switching process to consumers.
- 4.5. This document outlines the target Data Services Architecture and Data Architecture solutions which will deliver the new switching arrangements, and provide guidance on the impact to each Actor.

Governance

- 4.6. The Switching Programme's Regulatory workstream will define a Governance body to oversee the To-Be switching arrangements and to regulate the individual Market Participants within the To-Be switching ecosystem.
- 4.7. Changes to the status of Participants may in-turn require changes to related data within the Switching Data Model – e.g. to indicate that a given Participant is no longer authorised to perform a given role.
- 4.8. The Governance Data Service will instantiate the necessary functionality to enact these regulatory changes. Correspondingly, all Data Services within the To-Be switching ecosystem will require the capability to support enactment of governance changes through a defined interface to the Governance Data Service, known as the SwitchingDomainData interface.
- 4.9. The impact of new interfaces to individual Participants Data Services is defined in subsequent sections.

Target Networking & Communications

- 4.10. A new data communications network (the 'Switching Network') will be procured and commissioned to support the operation & management of the CSS. The specification and design of this network will be finalised as part of CSS Detailed Design.

Impact on Networking & Communications

4.11. All communications between the CSS and other systems within the E2E Switching Arrangements will occur via the 'Switching Network' (with the exception of communication with the DCC Data Service). Volumetrics detailing the total, average and peak number of Switch Requests which must be supported by the Switching Network are laid out in Ref.[04].

4.12. Connection to the Switching Network will require Parties to demonstrate compliance with a baseline control set which will be defined by the Security workstream and incorporated into the relevant governance instrument. This will set out the baseline set of Technical, Procedural, Physical and People controls which Parties must meet before the CSS Service Operator will grant access to the Switching Network.

4.13. All Data Services with outbound interfaces (i.e. sending data) to CSS require compliance with the baseline control set. Systems receiving Notifications only do not have outbound interfaces to CSS and will not require connectivity to the Switching Network. As such they will not require full compliance with the baseline control set, but may still require partial compliance – this requires further definition by the Security workstream.

4.14. Data/message flows between the CSS and other systems are defined in Ref.[02], with supporting information regarding their sequencing and coordination defined in Ref.[04].

4.15. DLS 4.1.10 Security Architecture will define the information management controls which will apply to the E2E Switching solution and by implication, the interconnectivity between participants.

Target Data Services Architecture

4.16. The thinking and approach behind the E2E Solution Architecture is driven by the Architectural Principles (Ref.[01]). The Solution Architecture defines a new CSS system that acts as the hub of the new switching service.

4.17. There are changes to the switching business process models for both gas and electricity, which necessitate a new end-to-end logical data model including:

- New classes and data elements
- Revisions to existing data classes
- Revised data flows between systems, notably around the CSS
- New interface architecture(s)
- A centralised processing component handling elements of the switching process

Target E2E Data Services Context

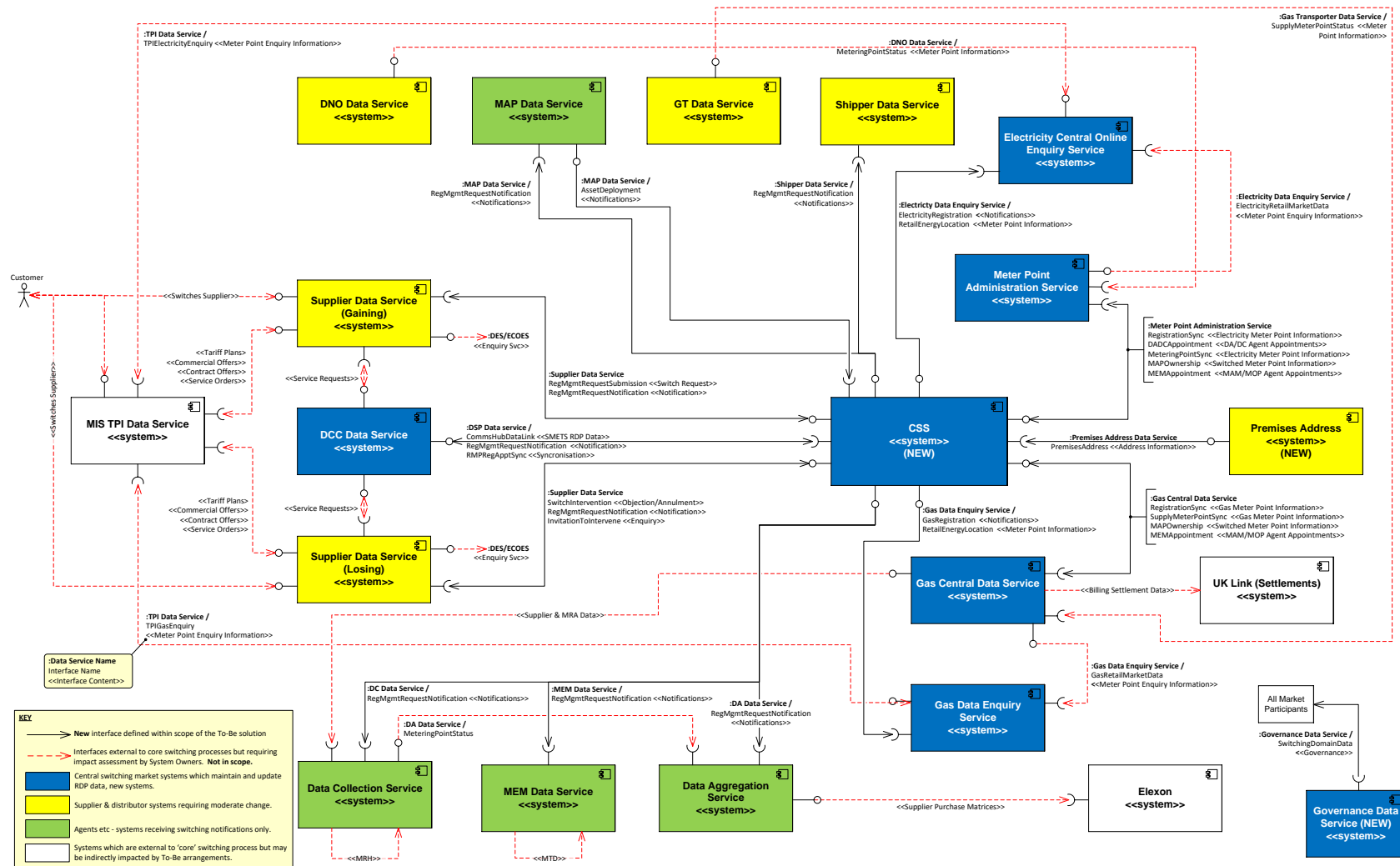


Figure 7 - E2E Switching Data Services Landscape (To-Be)

4.18. The following table summarises the Actors whose Data Services fall within scope of the target E2E architecture for CSS, and their role in the To-Be switching arrangements. Subsequent sections provide an analysis of the impact which the new solution will have on these Data Services.

4.19. Data Services is a Defined Term – please see Ref.[17] for details.

ACTOR	GAS OR ELECTRICITY	ROLE IN SWITCHING PROCESS
TPIs e.g. Price Comparison Websites (PCW), Brokers	Both	Allows (all) consumers to search and compare supplier tariffs and initiate Switch Requests.
Supplier (Gaining)	Both	Agree contract with new consumer. Carry out pre-switch validation and issues Switch Request.
Supplier (Losing)	Both	Processes the Switch Request, which it may choose to Object to or Annul, initiates consumer contract termination processes.
DCC	Both	Receives and maintains data to support the switching process and operates the GB Smart Metering network.
Meter Point Administration Service (MPRS)	Electricity	Maintains a database of meter point and registration data. Processes switching related data flows.
Gas Central Data Service (UK Link)	Gas	Maintains a database of supply meter point and registration data. Processes switching related data flows.
CSS	Both	Core of the To-Be switching process, orchestrating all switching process flows and maintaining the authoritative source of meter registration data.
Premises Address System	Both	3 rd Party system supplying premises address data in standard PO format.
Gas Transporter	Gas	Supplies Gas Transportation charges to supplier and processes meter point creation and terminations.
Governance Body	Both	Defines and enforces the regulatory framework governing participation in the To-Be switching arrangements.
Shipper	Gas	Processes meter point creation and terminations.
Distribution Network Operator (DNO)	Electricity	Processes meter point creation and terminations.
Electricity Central Online Enquiry Service (ECOES)	Electricity	Enquiry service. National database of electricity meter point and associated data.
Data Enquiry Service (DES)	Gas	Enquiry service. National database of gas supply meter point and associated data.
Meter Asset Provider (MAP)	Both	MAPs own and lease metering equipment to suppliers and consumers.
Metering Equipment Manager (MEM)	Both	Responsible for installing and maintaining meters.

ACTOR	GAS OR ELECTRICITY	ROLE IN SWITCHING PROCESS
Data Aggregator (DA) and Data Collector (DC)	Electricity	Appointed by a supplier to package up consumption data.

Target Data Services Impact

4.20. This section provides information regarding the impact on Data Services to Participants in the Switching ecosystem, which result from the implementation of the To-Be switching arrangements.

4.21. It is structured to provide impact information by Data Service in the E2E Switching Arrangements with supporting references to specific design products for relevant detailed information.

4.22. The approach to identifying impacts assumes that all Data Services participating in the new switching arrangements are 'black boxes' – i.e. their underlying technical architecture is not relevant. However, it is assumed that all participating Data Services will have the capability to accommodate and process any new inputs and outputs which are specified, and do so in accordance with the relevant requirements and standards.

4.23. Parties should perform further analysis to identify changes to their existing business and technical operations which are not directly identified here, but which may be a consequence of implementing of the new arrangements.

4.24. Full impact assessment will require analysis of this document in combination with:

- DLS 4.1.2 - Detailed Design Models – including Target E2E Business Processes, Interaction Sequence Diagrams, Logical Data Model & Interface Specifications
- DLS 4.1.4 – Non-Functional Requirements
- DLS 4.1.6 - Operational Choreography
- DLS 4.1.7 - Technical & Communications Standards
- DLS 4.1 - DB2 E2E Design Assumptions
- MRASCo Data Transfer Catalogue for existing interfaces between parties defined in the As-Is Electricity switching arrangements
- SPAA RGMA Data Transfer Catalogue for existing interfaces between parties defined in the As-Is Gas switching arrangements
- Parties' existing technical and operational documentation as required

Impact on Suppliers (Gaining and Losing)

4.25. Supplier Data Services will undergo a series of changes related to supporting the switching process for both the Gaining Supplier and the Losing Supplier that involves a new interface to and from CSS to facilitate the wider E2E Switching Arrangements.

4.26. New interfaces between Supplier Data Services and CSS are required to submit Switch Requests. CSS will have the capability to process these requests in Batch or Real Time.

4.27. CSS will provide Losing Suppliers with the option of raising an Objection or Annulment in response to a specified Switch Request via the InvitationToIntervene service interface. Correspondingly, Suppliers will implement the new SwitchIntervention interface to submit their request to Object or Annul a Switch Request (in response to InvitationToIntervene), to CSS. Suppliers have the option of responding at any point within the defined objections window

4.28. New industry business processes for Gaining and Losing suppliers, and interaction sequence diagrams describing their involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.29. The following new interfaces are specified for the Supplier Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	Supplier
SwitchIntervention	Outbound	Supplier	CSS
InvitationToIntervene	Inbound	CSS	Supplier
RegMgmtRequestSubmission	Outbound	Supplier	CSS
SwitchingDomainData	Inbound	Governance Data Service	Supplier

4.30. These interfaces are shown in the next diagram:

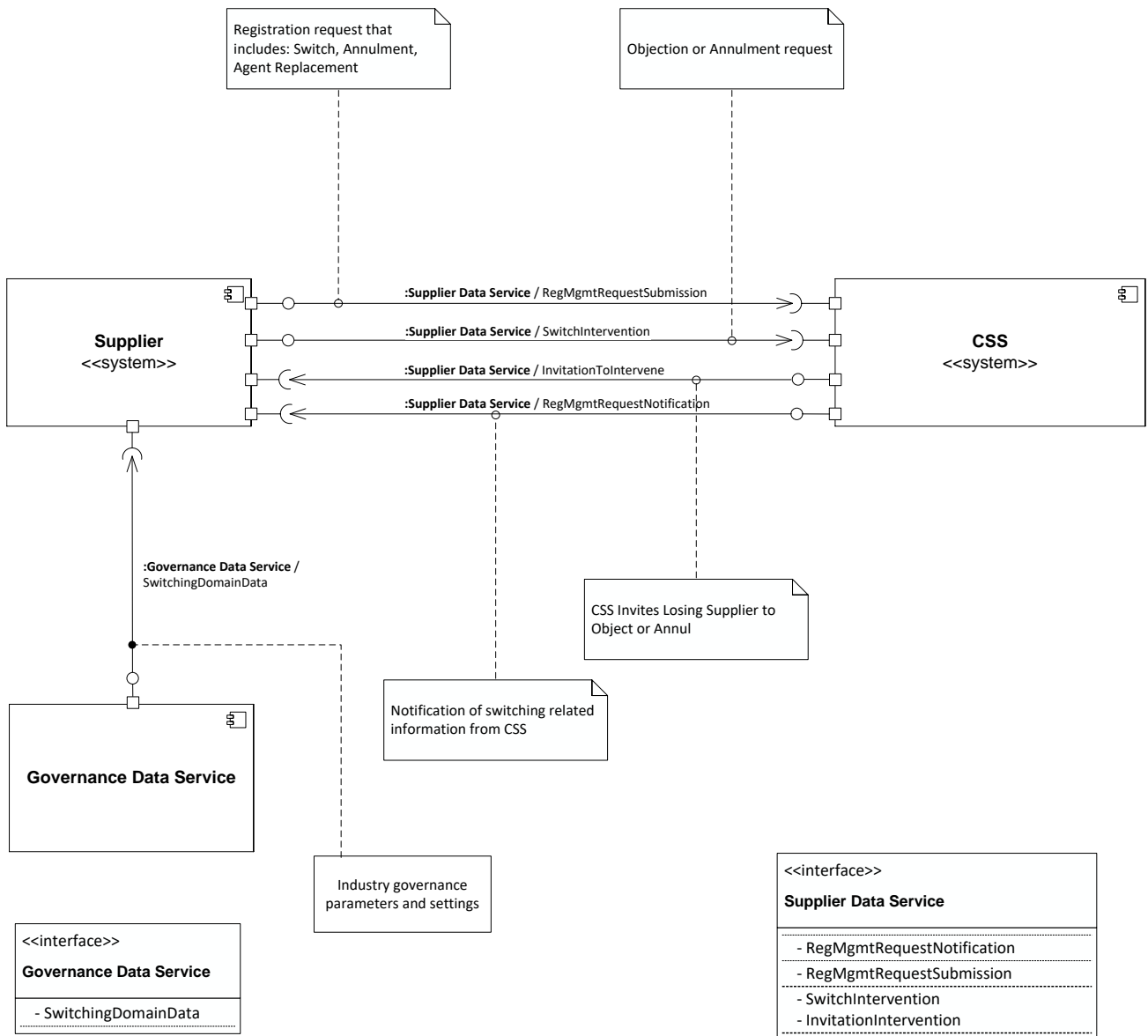


Figure 8 – New/Changed Interface between Supplier and CSS

4.31. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02].

4.32. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Suppliers – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS

	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
InvitationToIntervene	Purpose	CSS sends an invitation to the Losing Supplier to Object or Annul the Switch Request.
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > InvitationToIntervene</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Suppliers – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestSubmission	Purpose	Submission of a Switch Request or Switch Request Withdrawal from the Gaining supplier.
	Destination(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestSubmission</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
SwitchIntervention	Purpose	Real-time delivery of an Objection (to a Switch Request) or an Annulment with related information – from the Losing Supplier. Issued in response to an InvitationToIntervene enquiry.
	Destinations(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchIntervention</p>

		<u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
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Impact on Shippers

4.33. Under the As-Is switching arrangements responsibility for the Gas switching process is led by Shippers. However, harmonisation of switching arrangements across Gas and Electricity means that this will be a Supplier led process under the To-Be arrangements. There will be changes to the process by which Shippers get transportation quotes from Xoserve.

4.34. Consequently, in the To-Be Arrangements, Shippers will only receive notifications from CSS relating to the changing status of Switch Requests. Please refer to the [Interfaces](#) section for a list of Notification types issued by CSS.

4.35. The new industry business processes for Shippers, and interaction sequence diagrams describing their involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.36. The following new interfaces are specified for the Shipper Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	Shipper
SwitchingDomainData	Inbound	Governance Data Service	Shipper

4.37. These interfaces are shown in the next diagram:

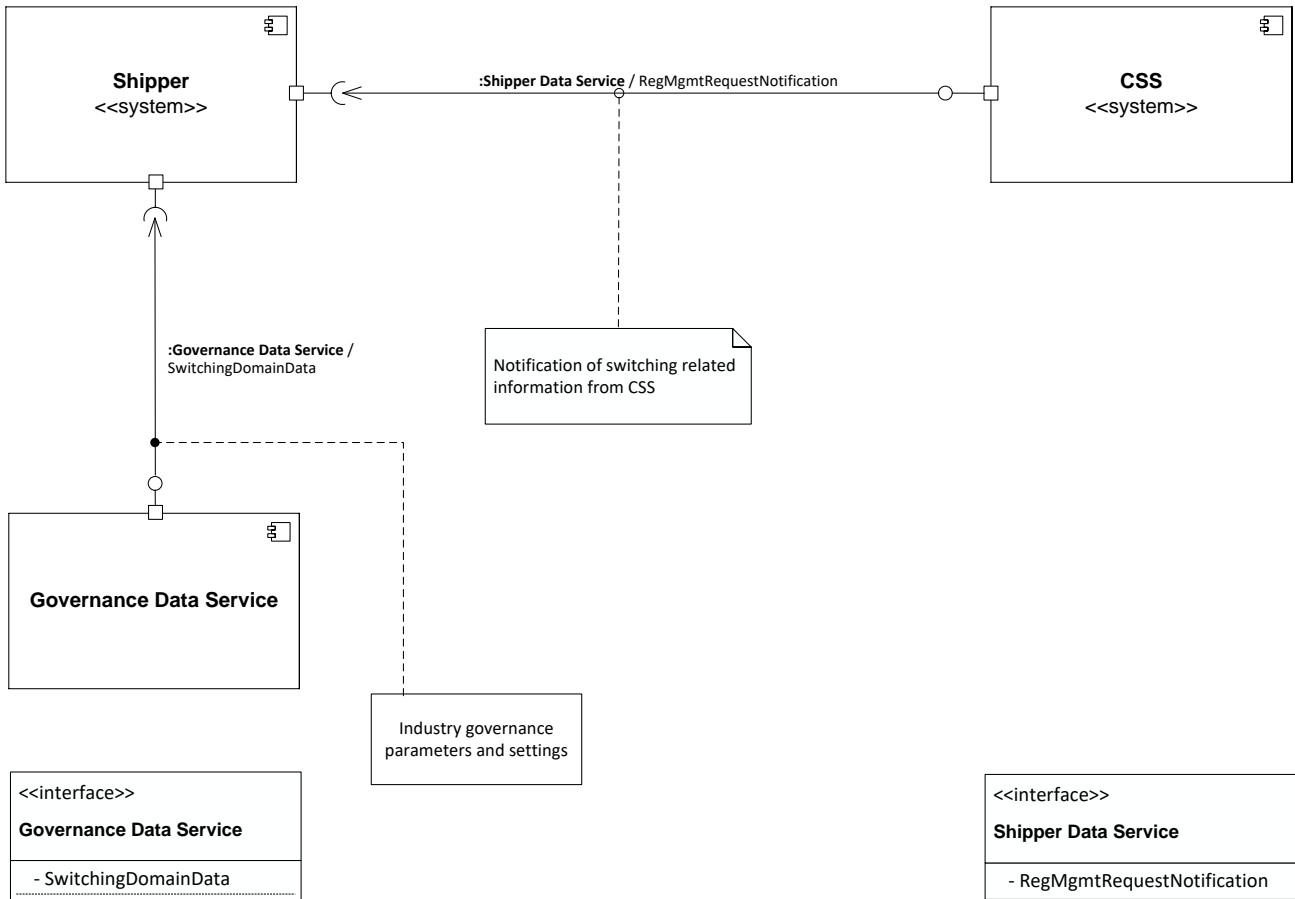


Figure 9 – New/Changed Interface between Shippers and CSS

4.38. The interface specification, including individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.39. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Shippers – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Shippers – New/Changed Outbound Interfaces

4.40. No new outbound interfaces are required from Shippers to CSS – Shippers are not required to send any data to CSS under the To-Be arrangements.

Impact on DCC

4.41. RDP (Registration Data Provider) data from Gas and Electricity will be provided in one single interface from CSS. CSS will assume responsibility for providing RDP updates to the DCC Data Service (DSP) via the RMPRegApptSync interface. These updates currently occur directly between the Electricity and Gas Central Data Services and the DCC Data Service .

4.42. The current Registration System Interfaces for Gas and Electricity¹ will be combined into a single interface with a similar data format of the existing combined file formats of the current interface specification – aligned to the Data Model and Interface standards defined in Refs.[02] & [07].

4.43. It would be possible to pass the DCC service data from the DCC Data Service to CSS and synchronise from there to Meter Point Administration Service/ECOES and Gas Central Data Service/DES (or directly from CSS to ECOES and DES). DCC service data is used in CSS for standstill period decision logic and is required to be present in CSS – the E2E design currently assumes this is synchronised from the Electricity/Gas Central Data Services.

4.44. This could provide benefits, e.g. DCC service data in CSS would be more timely and the current batch DCC Data Service/RDP interface could be superseded, but these would need to be qualified and quantified as part of a full impact assessment.

4.45. The DCC Data Service will be required to support Batch and Real-Time interfaces with CSS as defined in the [Interfaces](#) section of this document.

Impact Summary

4.46. The following new interfaces are specified for the DCC Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	DCC Data Service
RMPRegApptSync	Inbound	CSS	DCC Data Service
CommsHubDataLink	Outbound	DCC Data Service	CSS
SwitchingDomainData	Inbound	Governance Data Service	DCC Data Service

4.47. These interfaces are shown in the next diagram:

¹ These interfaces are specified in the SDC4.3.1 and SDC4.3.2 DSP Interface Specifications

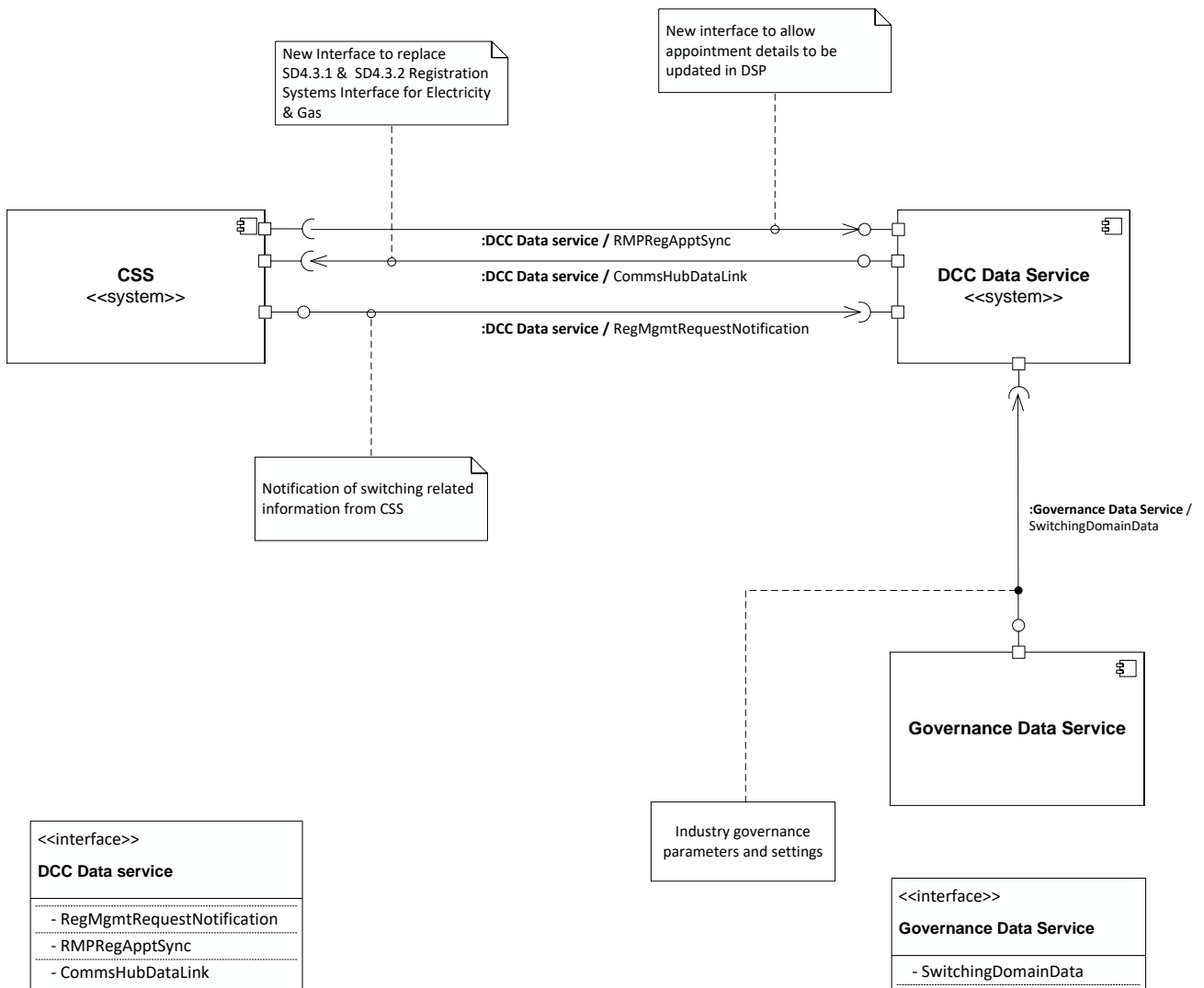


Figure 10 – New/Changed Interfaces between DCC Data Service and CSS

4.48. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02].

4.49. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

DCC Data Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification

		<u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
RMPRegApptSync	Purpose	Synchronisation of RMPs, Registration and Appointment details
	Source(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RMPRegApptSync <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

DCC Data Service – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS	
CommsHubDataLink	Purpose	Delivery of RDP data updates from the DCC Data Service relating to (Smart) electricity and gas meters connected to the same communications hub. Updates may be for individual items, subsets or a full refresh in exceptional circumstances. This interface will require the capability to support both real-time and batch updates.
	Destination(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > CommsHubDataLink <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

Impact on Gas Central Data Service (UK Link)

4.50. The Gas Central Data Service will undergo a series of systems changes related to the process of switching gas supplier, updating supply meter point asset details, stewardship of retail premises address (i.e. premises address served) to meter point data and new interfaces to and from CSS to facilitate the wider E2E Switching Arrangements for both Gas.

4.51. The process of switching gas supplier will be transferred to the CSS system from The Gas Central Data Service. This process transfer will be done in a manner that will not impact the remaining core functionality of the Gas Central Data Service and will require the creation of a number of new interfaces between CSS and the Gas Central Data Service.

4.52. The new industry business processes involving the Gas Central Data Service Provider, and interaction sequence diagrams describing its involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.53. The following interfaces are specified for the Gas Central Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
MAPOwnership	Outbound	Gas Central Data Service	CSS
MEMAppointment	Outbound	Gas Central Data Service	CSS
SupplyMeterPointSync	Outbound	Gas Central Data Service	CSS
RegistrationSync	Inbound	CSS	Gas Central Data Service
SupplyMeterPointStatus	Inbound	Gas Transporters	Gas Central Data Service
GasRetailMarketData	Outbound	Gas Central Data Service	Gas Data Enquiry Service
SwitchingDomainData	Inbound	Governance Data Service	Gas Central Data Service

4.54. Note: SupplyPointMeterStatus is an existing interface between the GT Data Service and the Gas Central Data Service. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.55. Note: GasRetailMarketData is an existing interface between the Gas Central Data Service and the Gas Data Enquiry Service. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.56. These interfaces are shown in the next diagram:

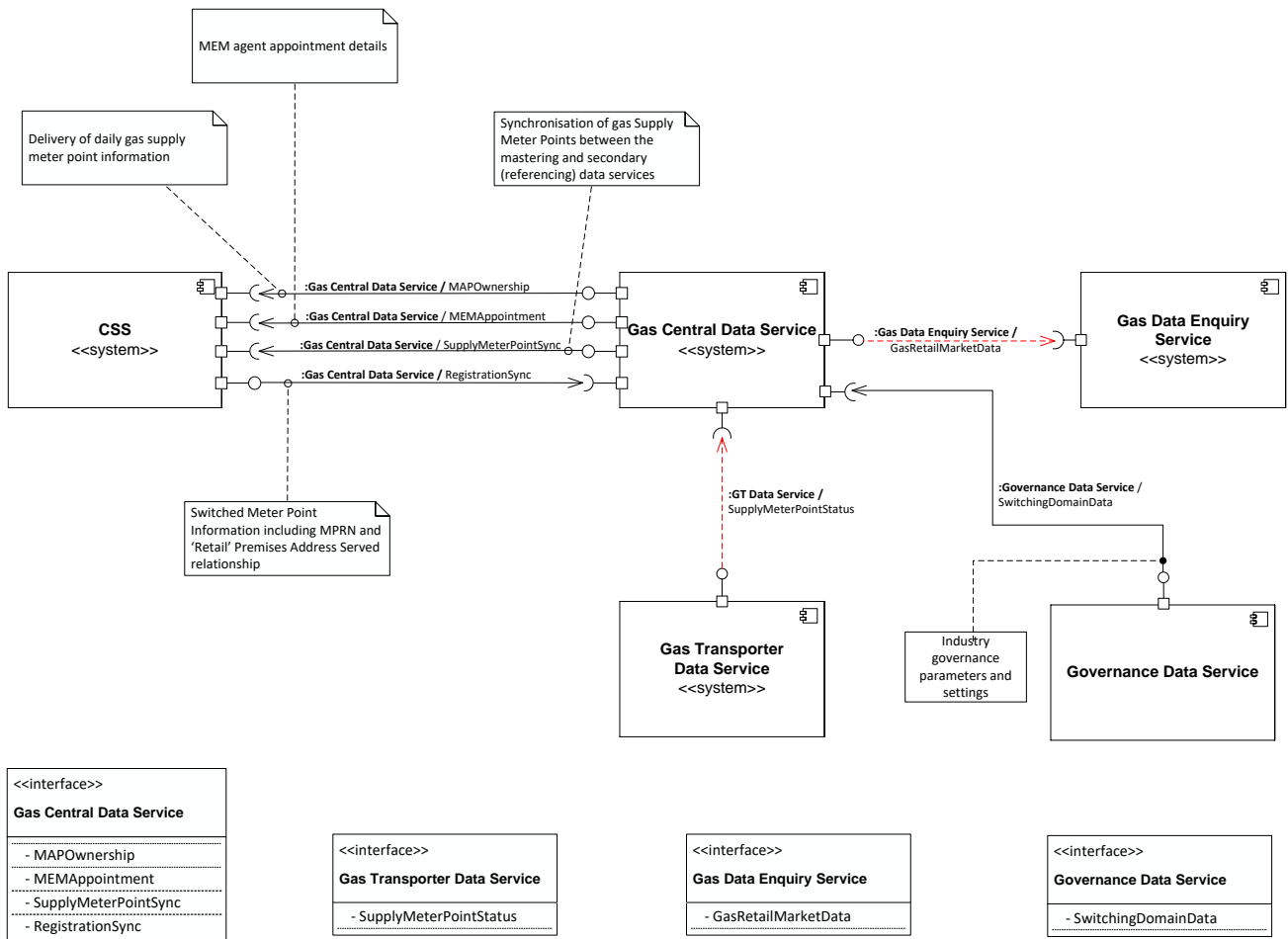


Figure 11 – New/Changed Interfaces to the Gas Central Data Service

4.57. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02].

4.58. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Gas Central Data Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegistrationSync	Purpose	Synchronisation of Registrations between the mastering and secondary (referencing) data services. i.e. consistency
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegistrationSync</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
SupplyMeterPointStatus	Purpose	Gas meter point status information supplied by GTs

	Source(s)	- Gas Transporter Data Service
	Interface Specification	Existing Interface – not redefined.
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

Gas Central Data Service – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS	
GasRetailMarketData	Purpose	Used to transfer Gas supply meter point information from the Gas Central Data Service to the Gas Data Enquiry Service
	Destination(s)	- Gas Data Enquiry Service
	Interface Specification	Existing Interface – not redefined.
MAPOwnership	Purpose	Delivery of daily gas supply meter point information (including supply meter point location and supplier registration data) updates. Includes synchronisation of Meter Asset Provider Ownership information between the mastering and secondary (referencing) data services and corresponding update of Supplier Arranged Appointments in CSS.
	Destination(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > MAPOwnership <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
MEMAppointment	Purpose	Specifies the Metering Equipment Manager agents.
	Destination(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > MEMAppointment <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

SupplyMeterPointSync	Purpose	Synchronisation of gas Supplier Meter Points between the mastering and secondary (referencing) data services
	Destination(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SupplyMeterPointSync</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Impact on Meter Point Administration Service

4.59. The Meter Point Administration Service (is a Data Service operated by DNOs to record data about metering points. Each MPAS requires impact assessment of the changes introduced by the To Be arrangements.

4.60. The Meter Point Administration Service will undergo a series of systems changes related to the process of switching electricity supplier, updating meter asset details, moving stewardship of retail premises address (i.e. premises address served) to meter point data and new interfaces to and from CSS to facilitate the wider E2E Switching Arrangements for Electricity.

4.61. The process of switching electricity supplier will be transferred to the CSS system from the Meter Point Administration Service. This process transfer will be done in a manner that will not impact the remaining core functionality of the Meter Point Administration Service. This change will be supported by the introduction of new interfaces between the Meter Point Administration Service and other systems.

4.62. One interface using the 'Electricity Meter Point Data Service' will provide CSS from the Gas Central Data Service with a daily full update feed of data that represents electricity meter point information that includes meter point location and supplier registration data.

4.63. A second interface using the 'Electricity Settlement Parameters Data Service' will provide the Meter Point Administration Service from CSS a daily full update feed of data that represents the switched information defining the new Meter Asset Provider (MAP) Ownership – the switched supplier to meter point relationship.

4.64. The new industry business processes and interaction sequence diagrams involving the Meter Point Administration Service and its involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.65. The following interfaces are specified for the Meter Point Administration Service in ABACUS:

- Meter Point Administration Service:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
MAPOwnership	Outbound	Meter Point Administration Service	CSS
DADCAppointment	Outbound	Meter Point Administration Service	CSS
MEMAppointment	Outbound	Meter Point Administration Service	CSS
MeteringPointSync	Outbound	Meter Point Administration Service	CSS

RegistrationSync	Inbound	CSS	Meter Point Administration Service
MeteringPointStatus	Inbound	DNOs	Meter Point Administration Service
ElectricityRetailMarketData	Outbound	Meter Point Administration Service	ECOES
SwitchingDomainData	Inbound	Governance Data Service	Meter Point Administration Service

4.66. Note: MeteringPointStatus is an existing interface between the Meter Point Administration Service and DNO Data Service. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.67. Note: ElectricityRetailMarketData is an existing interface between Electricity Central Online Enquiry Service and the Meter Point Administration Service. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.68. These interfaces are shown in the next diagram:

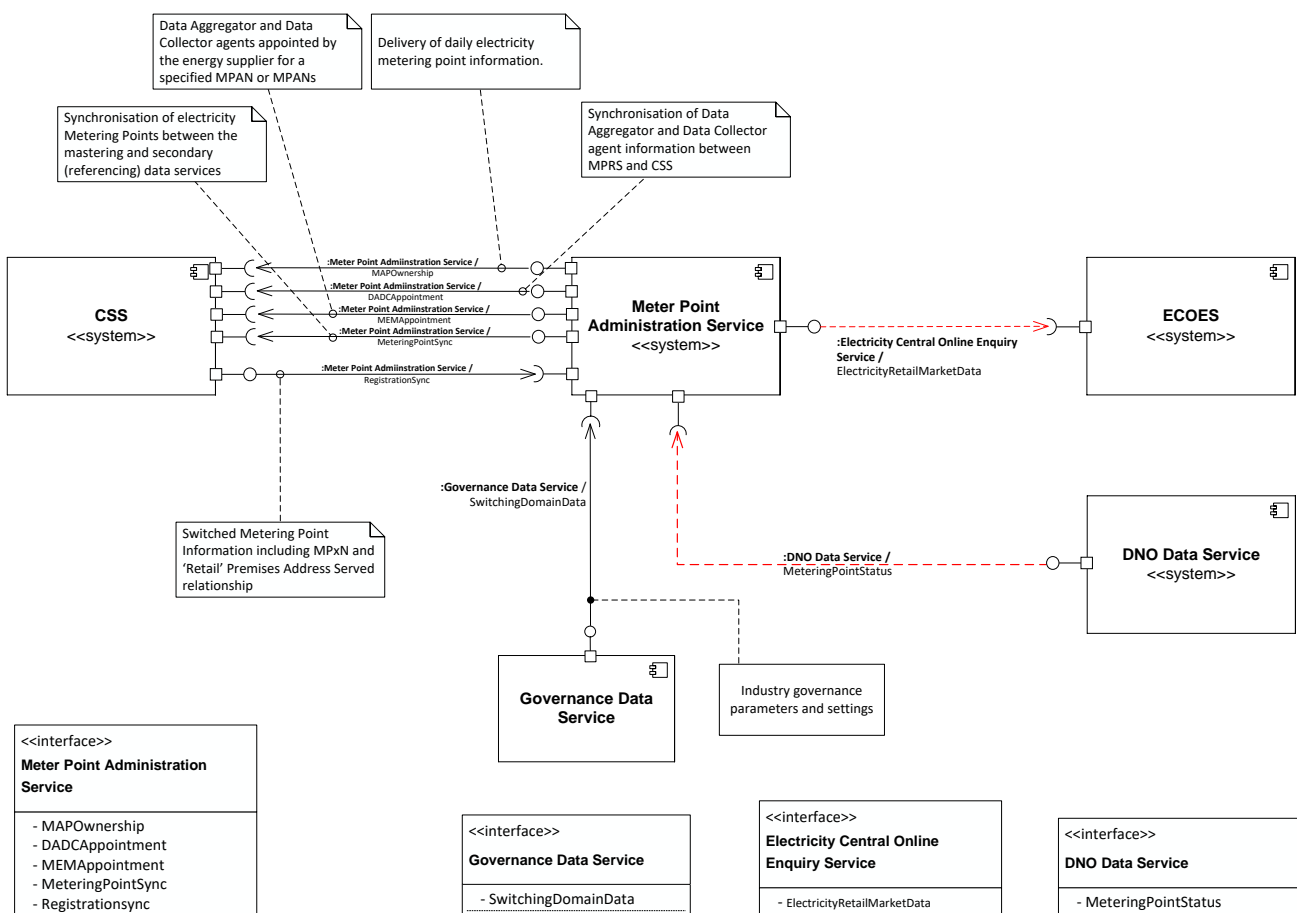


Figure 12 – New/Changed Interfaces with the Meter Point Administration Service

4.69. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02].

4.70. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Meter Point Administration Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegistrationSync	Purpose	Synchronisation of Registrations between the mastering and secondary (referencing) data services. i.e. consistency
	Source(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegistrationSync <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
MeteringPointStatus	Purpose	Synchronisation of Metering Point Registration Data between the mastering and secondary (referencing) data services. i.e. consistency
	Source(s)	- DNO Data Service
	Interface Specification	Existing interface – not redefined
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

Meter Point Administration Service – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS	
DADCAppointment	Purpose	Synchronisation of Data Aggregator and Data Collector agents (appointed by the energy supplier for a specified MPAN or MPANs) between the mastering and secondary (referencing) data services.
	Destination(s)	- CSS

	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > DADCAAppointment</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
ElectricityRetailMarketData	Purpose	Interface to supply updated meter point information from the Meter Point Administration Service to ECOES.
	Destination(s)	- Electricity Central Online Enquiry Service
	Interface Specification	Existing interface – not redefined.
MAPOwnership	Purpose	Delivery of daily electricity metering point information (including meter point location and supplier registration data) updates. Includes synchronisation of Meter Asset Provider Ownership information between the mastering and secondary (referencing) data services and corresponding update of Supplier Arranged Appointments in CSS.
	Destination(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > MAPOwnership</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
MEMAppointment	Purpose	Specifies the Metering Equipment Manager agents
	Destination(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > MEMAppointment</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
MeteringPointSync	Purpose	Synchronisation of electricity Metering Points between the mastering and secondary (referencing) data services
	Destination(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > MeteringPointSync</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Impact on Gas Data Enquiry Service (DES)

4.71. The Gas Data Enquiry Service (DES) will undergo systems changes related to receiving new gas enquiry information related to switched gas registrations (i.e. switched gas supplier). This new enquiry information will include the retail premises address (i.e. premises address served) to meter point data transferred through a new interface from CSS to the Gas Data Enquiry Service without conflicting with similar enquiry information transferred from the Gas Central Data Service.

4.72. The new interface will provide the Gas Data Enquiry Service with a daily full update feed of data from CSS that represents gas enquiry information related to switched gas registrations that includes the retail premises address to meter point data.

4.73. The new industry business processes and interaction sequence diagrams involving the Gas Data Enquiry Service and its involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.74. The following interfaces are specified for the Gas Data Enquiry Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RetailEnergyLocation	Inbound	CSS	Gas Data Enquiry Service
GasRegistration	Inbound	CSS	Gas Data Enquiry Service
TPIGasEnquiry	Inbound	MIS TPI Data Service	Gas Data Enquiry Service
GasRetailMarketData	Inbound	Gas Central Data Service	Gas Data Enquiry Service
SwitchingDomainData	Inbound	Governance Data Service	Gas Data Enquiry Service

4.75. Note: TPIGasEnquiry is an existing enquiry interface between MIS TPI Data Services and the Gas Data Enquiry Service. It is included here for completeness and to allow impact assessment. However, as it does not directly involve the CSS its implementation will need to be agreed directly between the respective System Owners.

4.76. Note: GasRetailMarketData is an existing interface between the Gas Central Data Service and the Gas Data Enquiry Service. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, as it does not directly involve the CSS its implementation will need to be agreed directly between the respective System Owners.

4.77. These interfaces are shown in the next diagram:

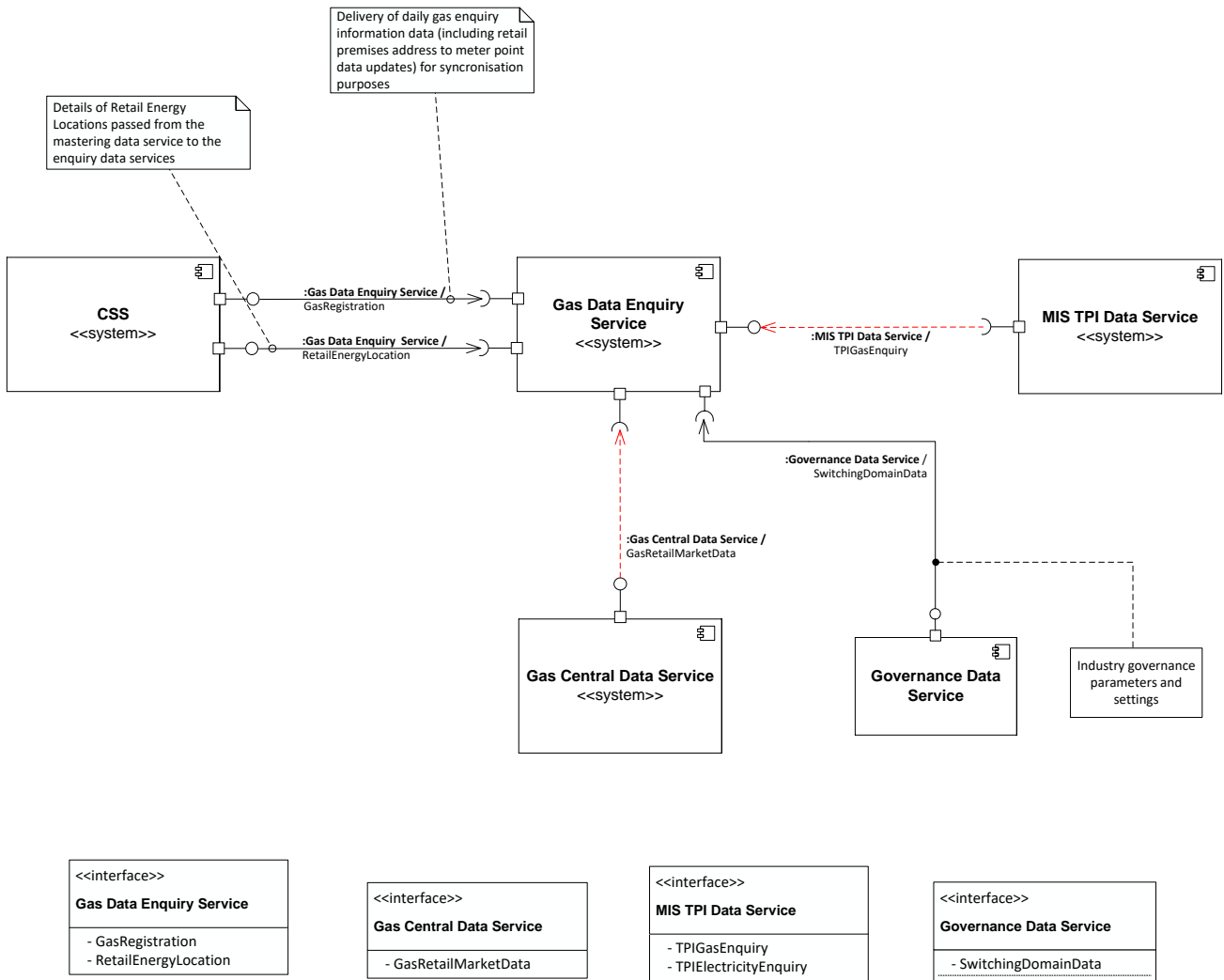


Figure 13 – New/Changed Interfaces with DES

4.78. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.79. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Gas Data Enquiry Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
GasRegistration	Purpose	Delivery of daily gas enquiry information data (including retail premises address to meter point data updates) to synchronise the mastering and secondary (referencing) data services
	Source(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > GasRegistration

		Refer to Ref.[05] for Technical standards: Data & Interface standards
RetailEnergyLocation	Purpose	Details of Retail Energy Locations passed from the mastering data service to the enquiry data services Address updates to the Gas Data Enquiry Service
	Source(s)	- CSS
	Interface Specification	Refer to ABACUS: Switching > Components > Data > Interface Specifications > RetailEnergyLocation Refer to Ref.[05] for Technical standards: Data & Interface standards
GasRetailMarketData	Purpose	Used to transfer Gas supply meter point information from the Gas Central Data Service to the Gas Data Enquiry Service
	Source(s)	- Gas Central Data Service
	Interface Specification	Existing interface – not redefined
TPIGasEnquiry	Purpose	A data enquiry interface between the MIS TPI Data Service and the Gas Central Data Service for retrieving meter point information.
	Source(s)	- Price Comparison Website
	Interface Specification	Existing interface – not redefined
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	Refer to ABACUS: Switching > Components > Data > Interface Specifications > SwitchingDomainData Refer to Ref.[05] for Technical standards: Data & Interface standards

Gas Data Enquiry Service – New/Changed Outbound Interfaces

4.80. There are no new outbound interfaces from the Gas Data Enquiry Service.

Impact on Electricity Central Online Enquiry Service (ECOES)

4.81. Changes to the functionality of the Electricity Central Online Enquiry Service (ECOES) and its role within the To-Be switching arrangements are defined [here](#).

4.82. ECOES will undergo systems changes related to receiving new electricity enquiry information related to switched electricity registrations (i.e. switched electricity supplier). This new enquiry information will include the retail premises address (i.e. premises address served) to meter point data transferred through a new interface from CSS to ECOES without conflicting with similar enquiry information transferred from the Meter Point Administration Service.

4.83. The new interface will provide ECOES with a daily update feed of data from CSS that represents electricity enquiry information related to switched electricity registrations including the retail premises address to meter point data.

4.84. The new industry business processes and interaction sequence diagrams involving ECOES and its involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.85. The following interfaces are specified for the Electricity Central Online Enquiry Service in ABACUS:

- Electricity Central Online Enquiry Service:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RetailEnergyLocation	Inbound	CSS	Electricity Central Online Enquiry Service
ElectricityRegistration	Inbound	CSS	Electricity Central Online Enquiry Service
ElectricityRetailMarketData	Inbound	Meter Point Administration Service	Electricity Central Online Enquiry Service
TPIElectricityEnquiry	Inbound	MIS TPI Data Service	Electricity Central Online Enquiry Service
SwitchingDomainData	Inbound	Governance Data Service	Electricity Central Online Enquiry Service

4.86. Note: ElectricityRetailMarketData is an existing interface between the Meter Point Administration Service and ECOES. It is included here for completeness, to show new forms of interaction, and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.87. Note: TPIElectricityEnquiry is an existing enquiry service interface between MIS TPI Data Services and ECOES. It is included here for completeness and to allow impact assessment. However, it does not directly involve the CSS and its implementation will need to be agreed between the respective System Owners.

4.88. These interfaces are shown in the next diagram:

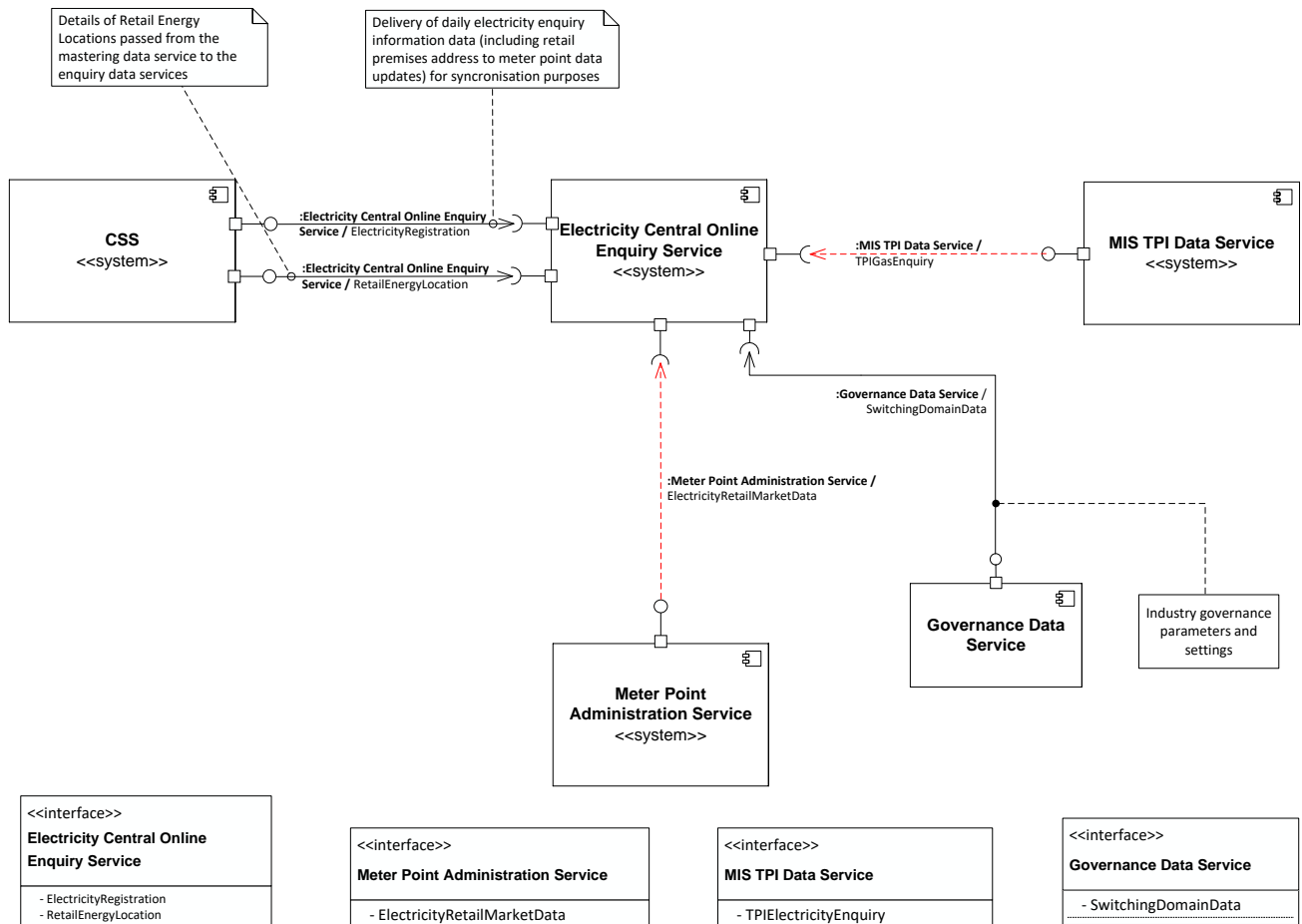


Figure 14 – New/Changed Interfaces with ECOES

4.89. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.90. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Electricity Central Online Enquiry Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
ElectricityRegistration	Purpose	Delivery of daily electricity enquiry information data (including retail premises address to meter point data updates) to synchronise the mastering and secondary (referencing) data services
	Source(s)	- CSS

	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > ElectricityRegistration</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
RetailEnergyLocation	Purpose	Details of Retail Energy Locations passed from the mastering data service to the enquiry data services Address updates to ECOES
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RetailEnergyLocation</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
ElectricityRetailMarketData	Purpose	Used to transfer meter point information from the Meter Point Administration Service to ECOES
	Source(s)	- the Meter Point Administration Service
	Interface Specification	Existing interface – not redefined.
TPIElectricityEnquiry	Purpose	A data enquiry interface between Electricity Central Online Enquiry Service and the MIS TPI Data Service to provide updated meter point information.
	Source	- Price Comparison Website
	Interface Specification	Existing interface – not redefined.
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Electricity Central Online Enquiry Service – New/Changed Outbound Interfaces

4.91. There are no new outbound interfaces from ECOES.

Impact on DNO Data Service

4.92. DNOs will implement changes to existing interfaces in order to provide updated meter point status information to Meter Point Administration Service.

4.93. The new industry business processes for DNOs, and interaction sequence diagrams describing their involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.94. The following interfaces are specified for the DNO Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
MeteringPointStatus	Outbound	DNO Data Service	Meter Point Administration Service
SwitchingDomainData	Inbound	Governance Data Service	DNO Data Service

4.95. Note: `MeteringPointStatus` represents an existing interface between the Meter Point Administration Service and DNO Data Service which may require changes under the new arrangements. It is included here for completeness and to allow impact analysis by System Owners. However, as it does not directly involve the CSS its implementation will need to be agreed directly between the respective System Owners.

4.96. These interfaces are shown in the next diagram:

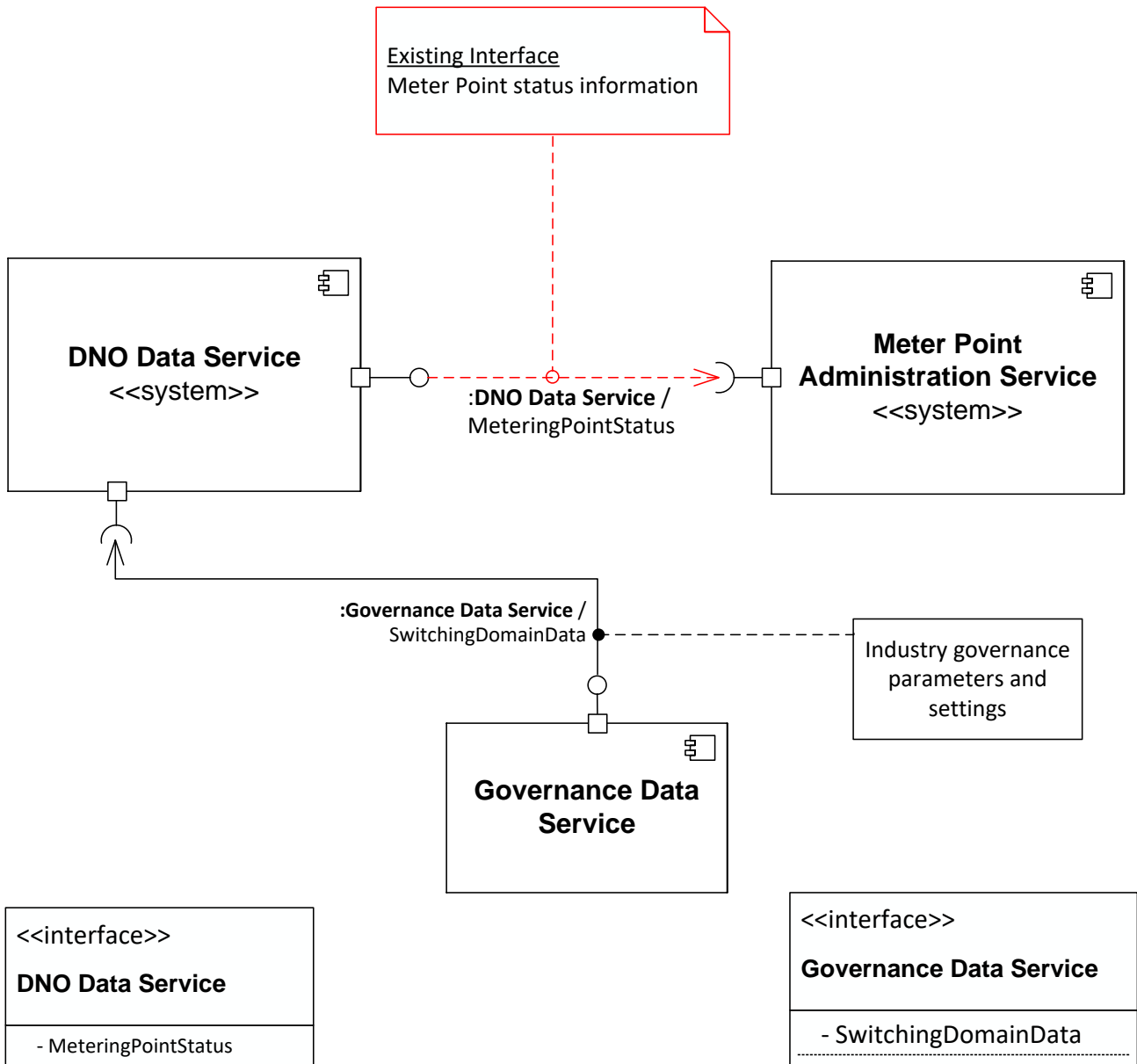


Figure 15 – New/Changed Interfaces for DNOs

DNOs – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

DNOs – New/Changed Outbound Interfaces

The following existing interface may require changes under the To Be arrangements:

INTERFACE NAME	DETAILS	
MeteringPointStatus	Purpose	Provides updated status information for meter points from DNOs.
	Destination(s)	- Meter Point Administration Service
	Interface Specification	Existing interface – not redefined.

Impact on Gas Transporters

4.97. GTs will require changes to their existing interface(s) to the Gas Central Data Service, to provide updated supply meter point status information.

4.98. The new industry business processes for GTs, and interaction sequence diagrams describing their involvement in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.99. The following interfaces are specified for the GT Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
SupplyMeterPointStatus	Outbound	Gas Transporter Data Service	Gas Central Data Service
SwitchingDomainData	Inbound	Governance Data Service	GT Data Service

4.100. **NOTE** – SupplyMeterPointStatus is an existing interface between GTs and the Gas Central Data Service. It is included here for completeness and to allow impacting by System Owners. However, as it does not directly involve the CSS its implementation will need to be agreed directly between the respective System Owners.

4.101. These interfaces are shown in the next diagram:

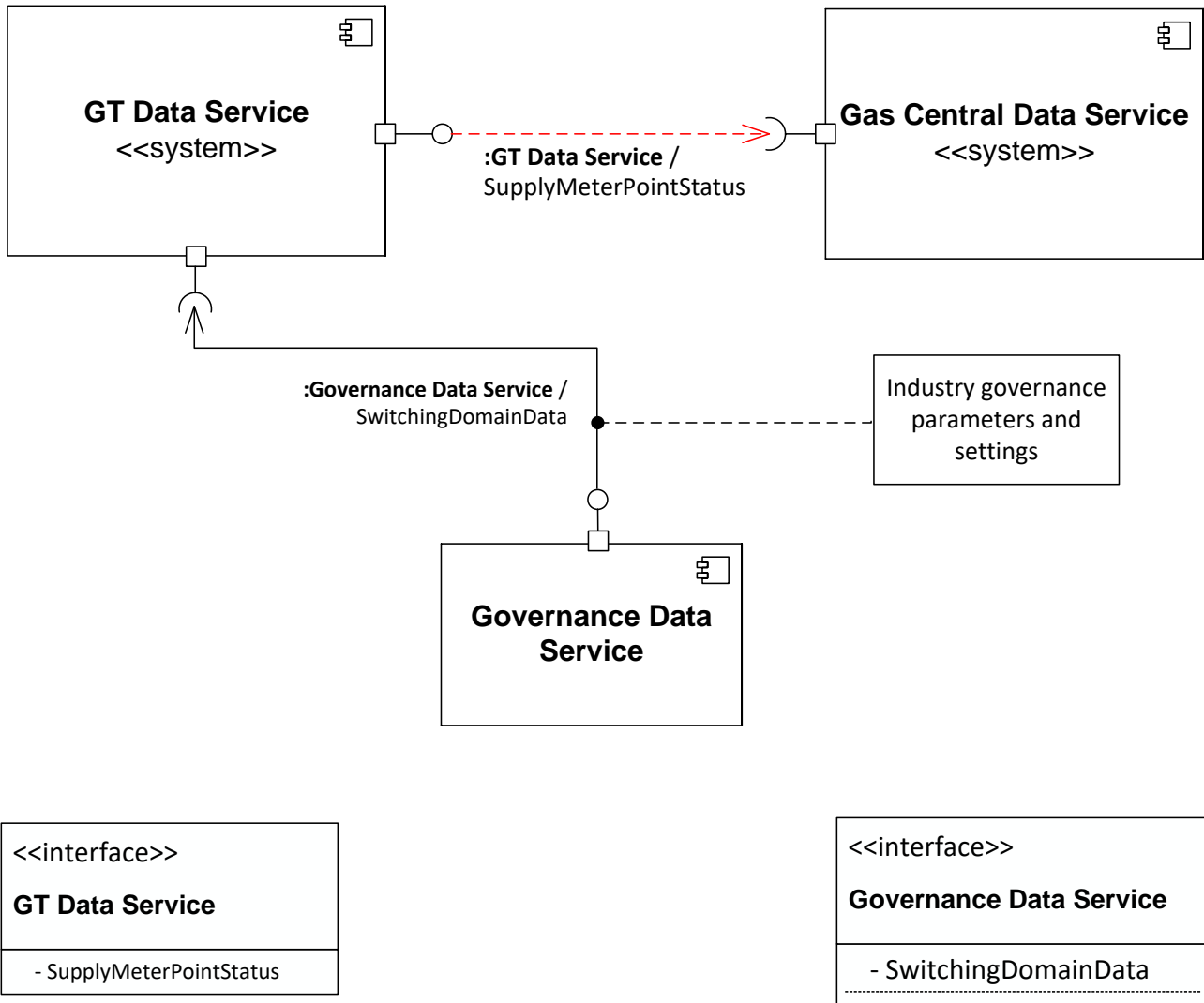


Figure 16 – New/Changed Interfaces between CSS and GTs for Switch Registration Notification

4.102. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.103. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Gas Transporters – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData

		Refer to Ref.[05] for Technical standards: Data & Interface standards
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Gas Transporters – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS	
SupplyMeterPointStatus	Purpose	Interface to allow gas meter information to be passed from GTs to the Gas Central Data Service.
	Destination(s)	- Gas Central Data Service
	Interface Specification	Existing interface – not redefined.

Impact on Data Collection Service (DC / MRA)

4.104. DC / MRA will require changes to the Data Collection Service related to receiving new notifications related to switched registrations (i.e. switched electricity supplier). This new notification will be data transferred through a new interface from CSS to DC / MRA systems.

4.105. The new interface will provide the DC / MRA with Notifications from CSS related to changed registrations.

4.106. The new industry business processes and interaction sequence diagrams describing the role of DC / MRAs in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.107. The following new interfaces are specified for Data Collection Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	Data Collection Service
SwitchingDomainData	Inbound	Governance Data Service	Data Collection Service

4.108. These interfaces are shown in the next diagram:

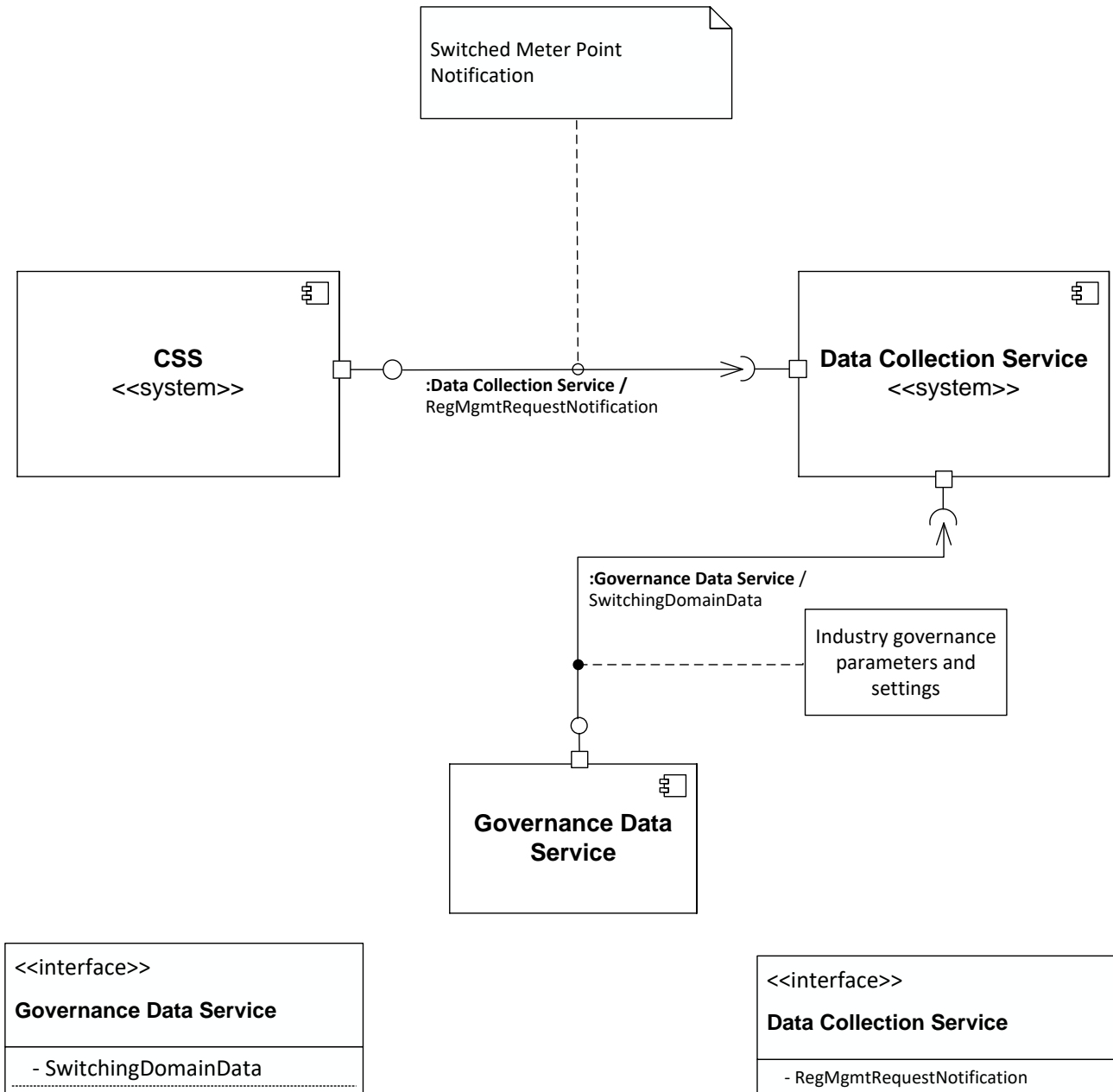


Figure 17 – New/Changed Interface between CSS and DC / MRA for Switch Registration Notification

4.109. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.110. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Data Collection Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.

	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

Data Collection Service – New/Changed Outbound Interfaces

4.111. No new/changed outbound interfaces are specified for DC/MRAs.

Impact on Data Aggregation Service

4.112. Data Aggregators (DAs) may choose to implement changes to the Data Aggregation Service related to receiving new notifications related to switched registrations (i.e. switched electricity supplier). This new notification will be data transferred through a new interface from CSS to DA systems.

4.113. The new interface using the 'Data Aggregation Service' will provide DAs with Notifications from CSS related to switched registrations.

4.114. The new industry business processes and interaction sequence diagrams describing the role of DAs in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.115. The following new interfaces are specified for the Data Aggregation Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	Data Aggregation Service
SwitchingDomainData	Inbound	Governance Data Service	Data Aggregation Service

4.116. The new interfaces for the Data Aggregation Service are shown in the next diagram:

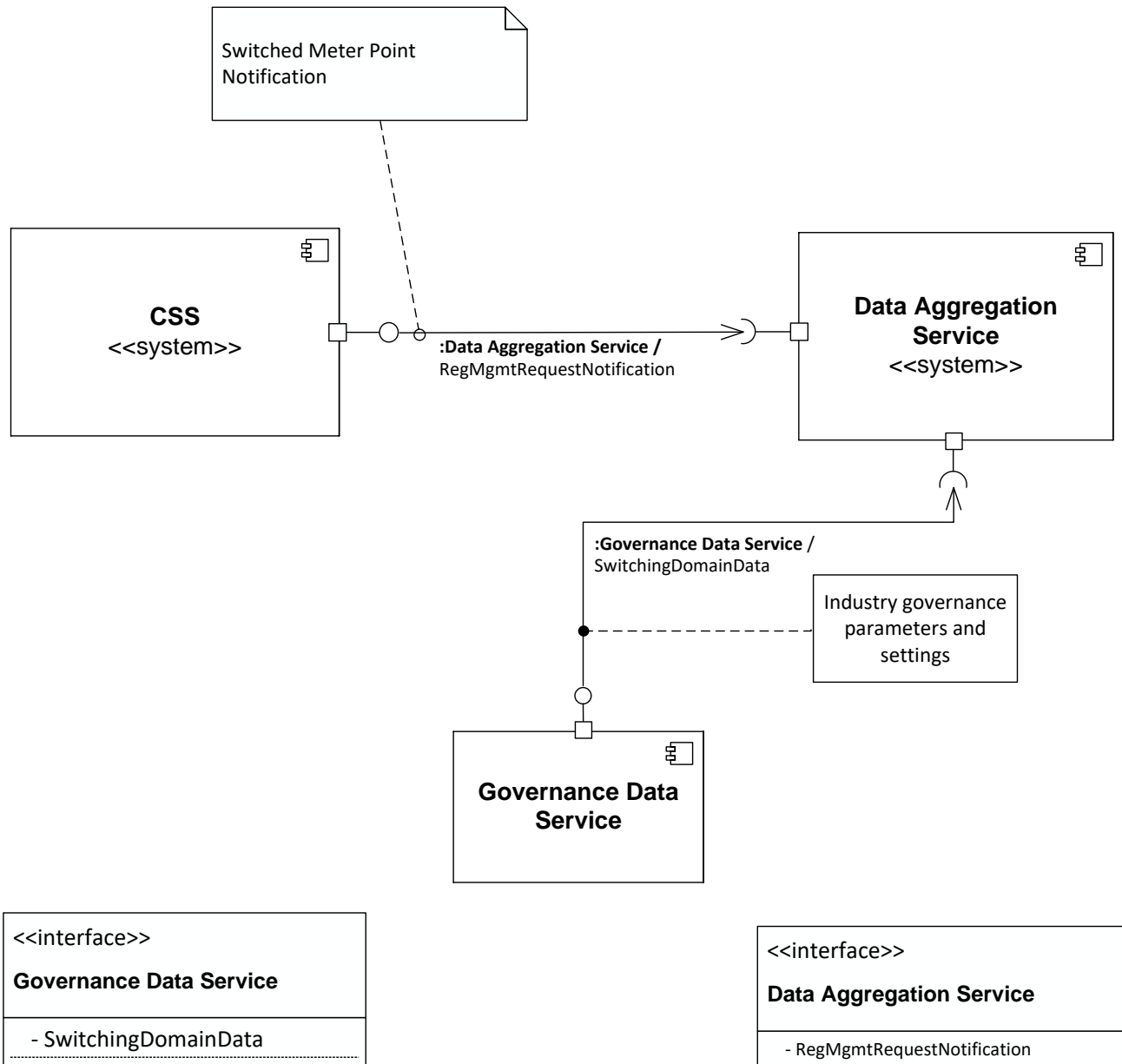


Figure 18 – New/Changed Interface between CSS and DAs for Switch Registration Notification

4.117. The specification of this interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.118. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

Data Aggregation Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS
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RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData <u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards

Data Aggregation Service – New/Changed Outbound Interfaces

4.119. None.

Impact on MEM Data Service

4.120. The MAM and MOP parties that exist within the As-Is arrangements, will be consolidated into the new Metering Equipment Manager (MEM) party within the To-Be arrangements.

4.121. MEMs will implement changes to the MEM Data Service if they choose to receive new notifications related to switched registrations (i.e. switched electricity supplier). This notification will be transferred through a new interface from CSS to MEM Data Services.

4.122. The new interface will provide MEMs with Notifications from CSS related to switched registrations.

4.123. The new industry business processes and interaction sequence diagrams describing the role of the MEM in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.124. The following new interfaces are specified for the MEM Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	MEM Data Service
SwitchingDomainData	Inbound	Governance Data Service	MEM Data Service

4.125. These interfaces to are shown in the next diagram:

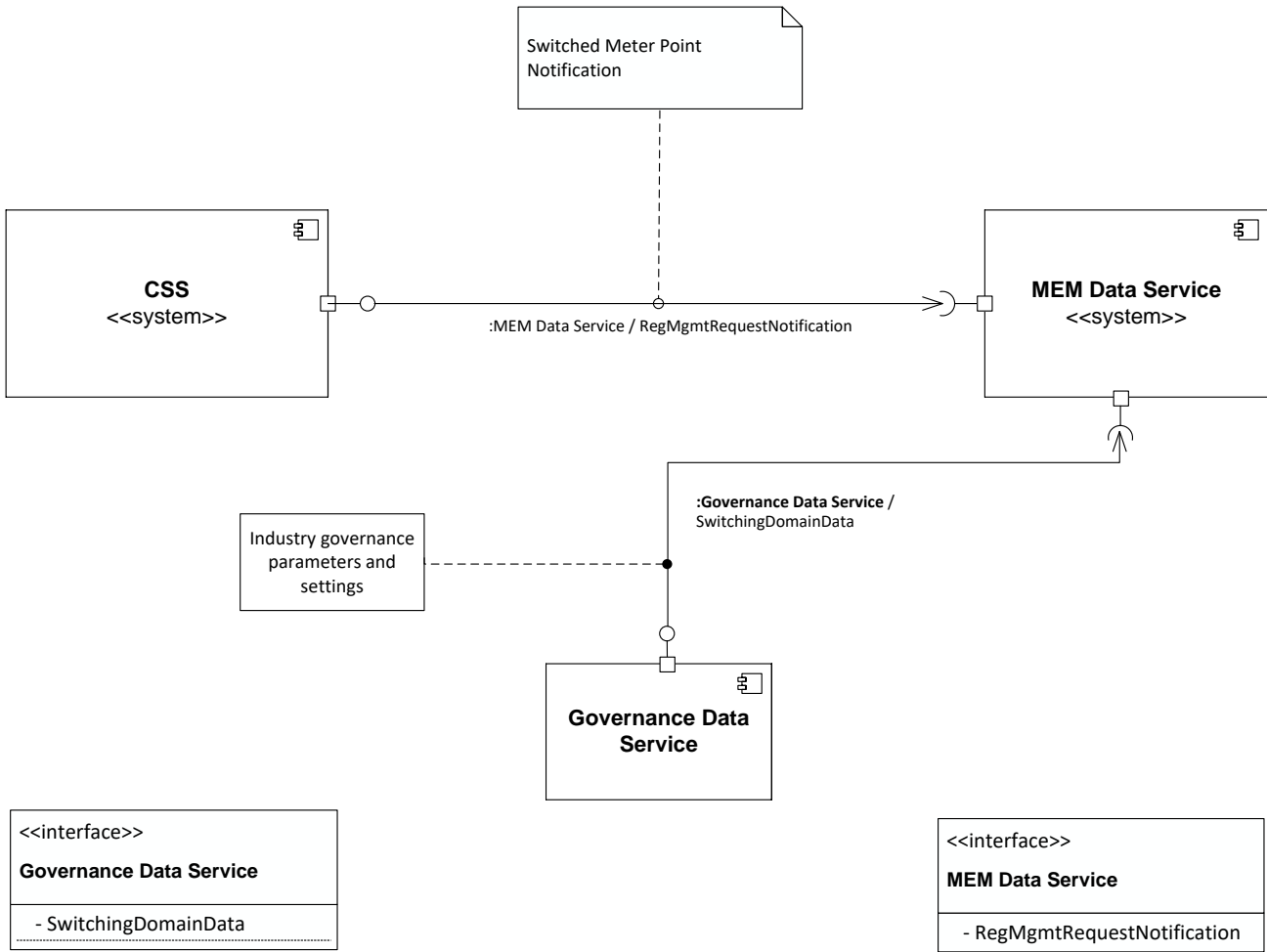


Figure 19 – New/Changed Interface between CSS and MAM/ MOPs for Switch Registration Notification

4.126. The specification of this interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.127. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

MEM Data Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

MEM Data Service – New/Changed Outbound Interfaces

4.128. None.

Impact on MAP Data Service

4.129. MAPs will implement changes to their Data Services to receiving new Notifications from CSS related to switched registrations, and to provide updated change of Asset or Ownership details to CSS.

4.130. This data will be transferred through new interfaces between CSS and MAP Data Services.

4.131. The new industry business processes and interaction sequence diagrams describing the role of the MAP in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.132. The following new interfaces are specified for the MAP Data Service in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
RegMgmtRequestNotification	Inbound	CSS	MAP Data Service
AssetDeployment	Inbound	CSS	MAP Data Service
SwitchingDomainData	Inbound	Governance Data Service	MAP Data Service

4.133. The interfaces are shown in the next diagram:

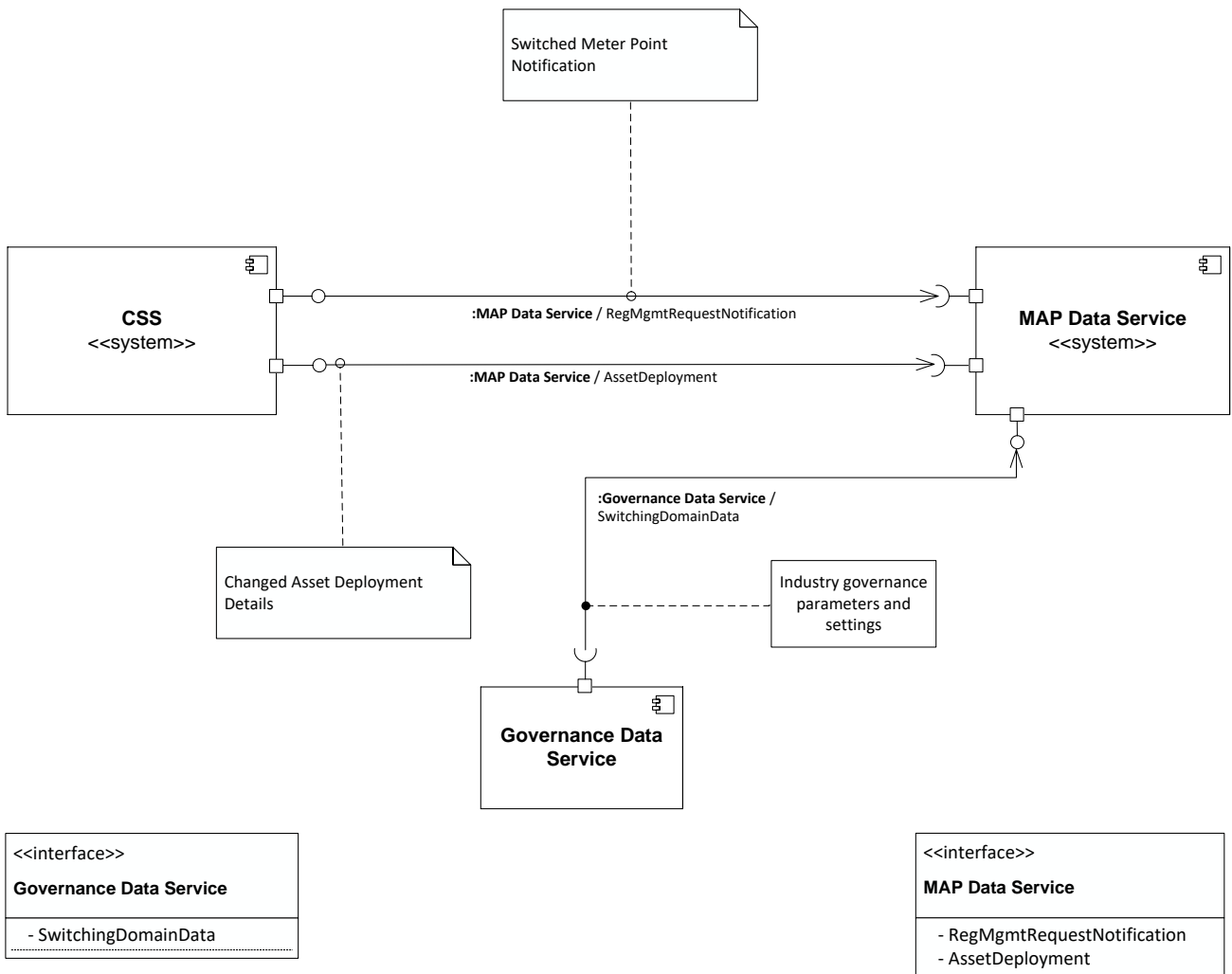


Figure 20 – New/Changed Interfaces between CSS and MAPs for Switch Registration Notification

4.134. The specification of each new interface including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02]

4.135. Please refer to Appendix 2 – Use of Switching Design Repository for further information on how to locate the appropriate content within the repository.

MAP Data Service – New/Changed Inbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Source(s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > RegMgmtRequestNotification</p> <p><u>Refer to Ref.[05] for Technical standards:</u></p>

		Data & Interface standards
AssetDeployment	Purpose	Details of changes to the significant asset that is deployed at each RMP
	Destination (s)	- CSS
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > AssetDeployment</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>
SwitchingDomainData	Purpose	Information published by industry governance concerning the parameters and settings applicable across all participants in switching processes
	Source(s)	- Governance Data Service
	Interface Specification	<p><u>Refer to ABACUS:</u> Switching > Components > Data > Interface Specifications > SwitchingDomainData</p> <p><u>Refer to Ref.[05] for Technical standards:</u> Data & Interface standards</p>

MAP Data Service – New/Changed Outbound Interfaces

4.136. The solution will not directly implement any new outbound interfaces from MAP Data Services.

Impact on Settlements

4.137. There is no direct impact on the Gas Central Data Service – Settlements system related to changes to the E2E Switching Arrangements as a result of implementing the CSS system. Although there are changes to the Gas Central Data Service to provide a daily update feed of data that represents the switched information defining the new MAP Ownership (i.e. the switched supplier to meter point relationship), this change does not present an impact on the current the Gas Central Data Service - Settlements system, processing and operations.

4.138. There is no impact on the Elexon – Settlements system as a result of implementing the CSS system. The Elexon – Settlements system will continue to be supported by DA systems in its current state and environment (i.e. processing and operations).

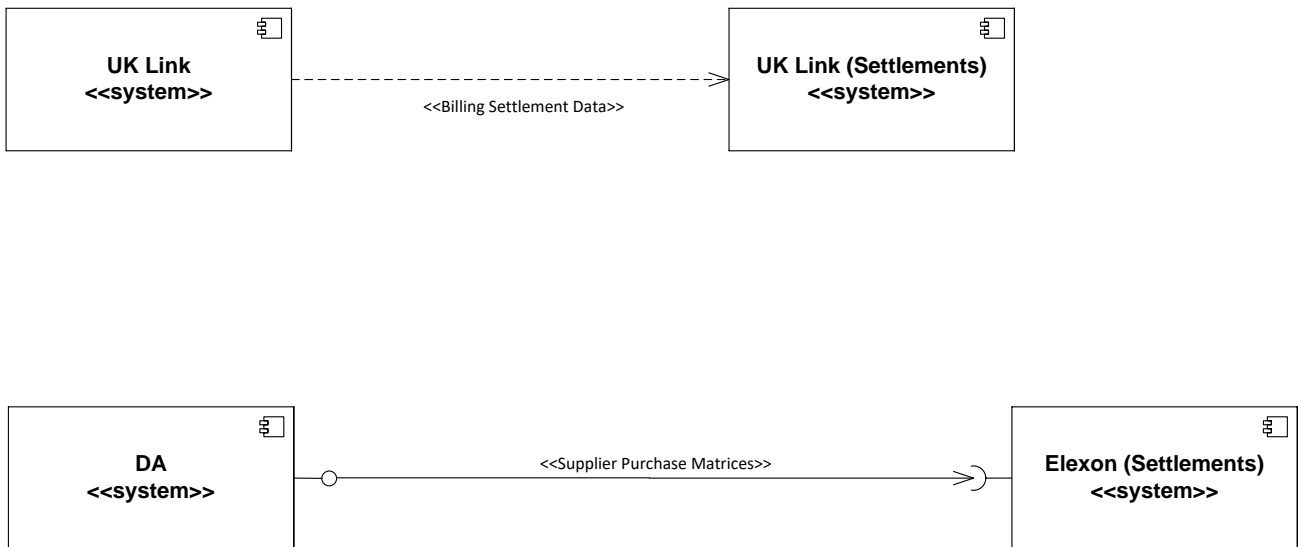


Figure 21 – Interfaces between Settlements

4.139. There are no changes to data formats and interface design, and therefore, no changes are required to be submitted to Code Bodies and Codes (e.g. SEC - Smart Energy Code) documentation.

Impact on Third Party Intermediaries (TPI)

4.140. TPIs (such as Brokers or Price Comparison Websites (PCWs)) will undergo changes to their existing interfaces to the gas and electricity enquiry services (DES and ECOES), to supplement and enhance the supplier switching functionality of their systems.

4.141. The new interfaces using the 'MIS TPI Data Service' will provide PCWs from DES and ECOES with gas and electricity enquiry information respectively, to support improved consumer data validation functionality.

4.142. The new industry business processes and interaction sequence diagrams describing the role of the PCW / TPI systems in these processes, are defined in the Switching Design Repository (ABACUS).

Impact Summary

4.143. The following new interfaces are specified for MIS TPI Data Services in ABACUS:

INTERFACE NAME	DIRECTIONALITY	SENDING DATA SERVICE	RECEIVING DATA SERVICE
TPIGasEnquiry	Outbound	MIS TPI Data Service	Gas Data Enquiry Service
TPIElectricityEnquiry	Outbound	MIS TPI Data Service	Electricity Central Online Enquiry Service

4.144. Note – The above interfaces are included here for completeness and to allow impacting by System Owners. However, as it does not directly involve the CSS its implementation will need to be agreed directly between the respective System Owners.

4.145. The interfaces for MIS TPI Data Services are shown in the next diagram:

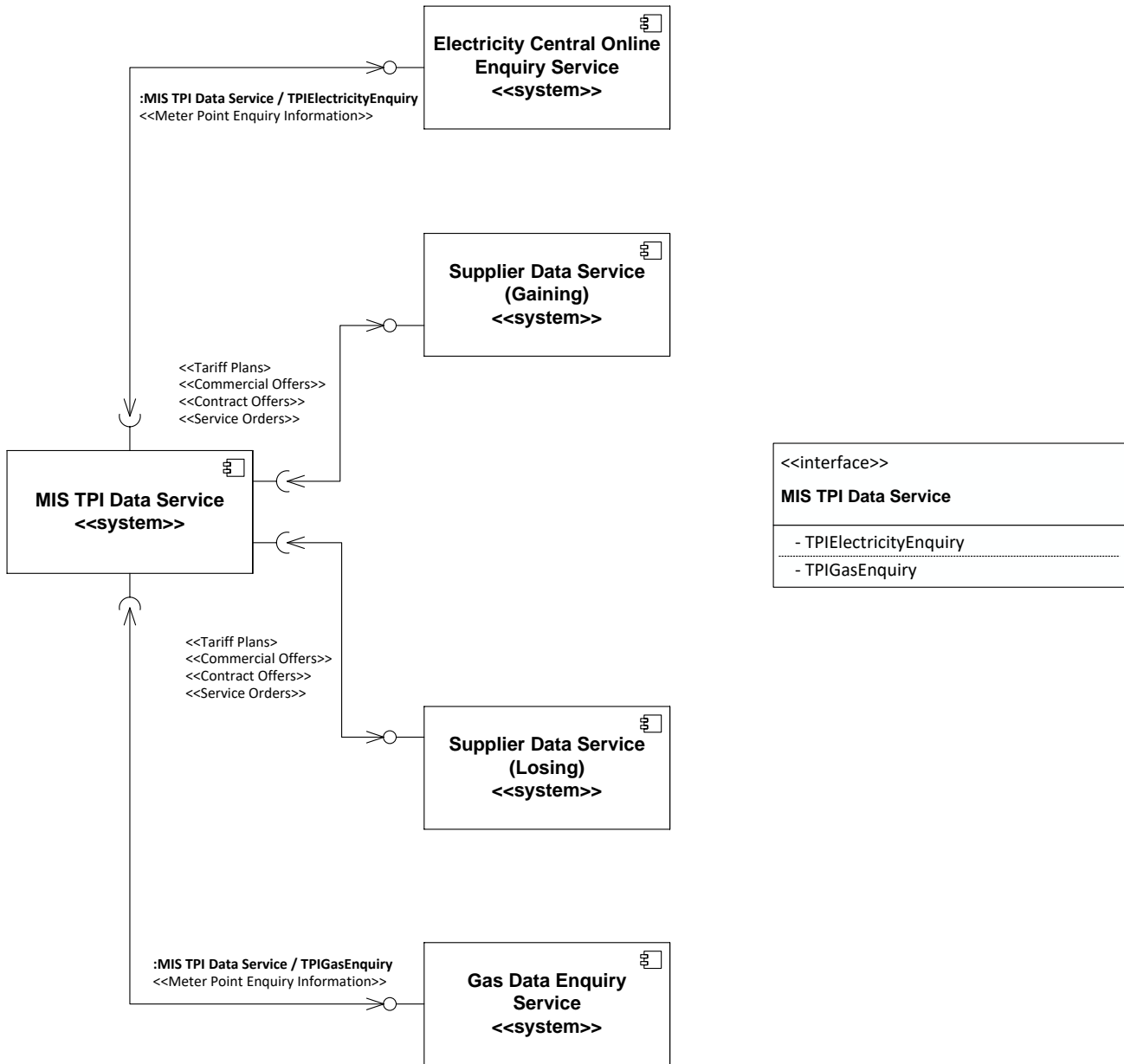


Figure 22 – Interfaces to MIS TPI Data Services in the To-Be Solution

MIS TPI Data Service – New/Changed Inbound Interfaces

4.146. There are no new inbound interfaces to TPI Data Services, however Suppliers may wish to implement changes to existing interfaces to TPIs through which they exchange commercial and contractual data.

MIS TPI Data Service – New/Changed Outbound Interfaces

INTERFACE NAME	DETAILS
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TPIElectricityEnquiry	Purpose	A data enquiry interface between the MIS TPI Data Service and Electricity Central Online Enquiry Service for retrieving (electricity) meter point information.
	Destination(s)	- Electricity Central Online Data Service
	Interface Specification	Existing interface – not redefined.
TPIElectricityEnquiry	Purpose	A data enquiry interface between the MIS TPI Data Service and Gas Data Enquiry Service for retrieving (gas) meter point information.
	Destination (s)	- Gas Data Enquiry Service
	Interface Specification	Existing interface – not redefined.

Impact on other Agents

4.147. There are no system impacts to other agents within the E2E Switching Arrangements eco-system related to implementing the CSS system. Therefore, there are no further changes to data formats and interface design required to be submitted to Code Bodies and Codes (e.g. SEC - Smart Energy Code) documentation.

Target Data Architecture

4.148. The Data Model required to enable to To-Be switching arrangements can be found in the ABACUS Switching Design Repository.

4.149. A User Guide to navigating ABACUS is provided in Appendix 2, which provides information regarding how to navigate and locate content within the repository.

4.150. The ABACUS architecture modelling tool has been used to define the end-to-end business process flows, data, data services and interfaces required to deliver the To-Be switching arrangements. This 'Switching Design Repository' is the authoritative source of information across these areas.

4.151. Data items which form part of the As-Is switching arrangements and are not directly impacted by the target solution, are not captured within the Switching Design Repository.

Data Model

4.152. The Logical Data Model (LDM) was developed in the Blueprint Phase as an evolution of the Architectural Data Model, although specifically in support of the development option known as Reform Package 2. The model is published in the Switching Design Repository, which connects all design elements of the end-to-end arrangements within a unified model, and is located within ABACUS at:

- Switching > Diagrams > Static Structure > Data Definition > Detailed Design Phase E2E Logical

4.153. Specific uses of the LDM include:

- Identifying Data in Motion - new service interfaces with CSS will be expressed with switching LDM concepts.
- Identifying Data at Rest - persistent data stores will be expressed with switching LDM concepts.
- Defining the data mastership of data elements against data service.

Data Services Landscape

4.154. The E2E target Data Services landscape diagram can be found in the Switching Design Model at:

- Switching > Diagrams > Static Structure > Data Services > E2E Data Services Landscape with Message References.

4.155. A Data Service is defined as a system, process or service used by an Actor to supply and/or consume data within the E2E to-be Switching solution.

Data Services Catalogue

4.156. The ABACUS model lists all the Data Services used by participating actors in the E2E Switching Arrangements. This information is provided as a catalogue within the Switching Design Repository at the following location:

- Switching > Components > Services

Data Mastership

4.157. The Logical Data Model (LDM) defines the data items required within the To-Be solution and their constituent data elements, and the Data Services Landscape represents the flow of these data items between Data Services.

4.158. A Data Mastership matrix has been constructed which augments the LDM and Data Services Landscape by defining the responsibility of each Data Service in relation to all defined data elements, qualified by three roles:

- M – Master
- S – Secondary
- A – Authorised Provider

4.159. The Data Mastership matrix is held in the Switching Design Repository at the following location:

- Switching > Catalogues > Mastership

Interfaces

4.160. Where a switching related interface exists between two systems and does not include CSS, the respective System Owners will need to determine how the interface will be implemented to meet the functional non-functional requirements.

4.161. From a system perspective CSS will need to have the capability to support batch and real-time data transfers (interfaces). Batch and real-time interfaces are defined later in this section. The choice of batch or real-time relates to two areas of the E2E system:

- Interface operation – is the data transmitted as individual transactions upon generation or batched up into collections of transactions/messages?
- Interface processing – does the receiving system process incoming transactions/data immediately upon receipt (i.e. in 'real time') or does it store/queue/hold them for later processing?

4.162. Batch will almost certainly be required for emergency and recovery etc. and might be the preferred mode of operation for interfaces where there are no dependencies or constraints on the timing of data transmission or processing.

4.163. The To-Be solution will deliver a Switching ecosystem which will initially support a five-working day E2E Switch process, with the capability of moving to instant-reactive processing of Objections and next working-day switching as required.

4.164. The Switching ecosystem (particularly CSS) must be capable of supporting this reduction through interface configuration rather than system upgrades.

4.165. The decision on whether a given exchange of information between two systems requires real time or batch interface operation or processing, is driven by the Operational Choreography requirement of the E2E business process (see Ref.[04]). A breakdown of the impact of To-Be business processes on each system is given later in this section.

4.166. Where required, XML based interfaces will be implemented – interface operation and patterns are described later in this section. Connectivity requirements and standards are defined in Ref.[05].

4.167. Information describing how the interfaces will be orchestrated, including relevant time dependencies for subsequent processing and/or responses, are provided in Ref.[04] – DLS-4.1.6 E2E Operational Choreography, which impacted parties are recommended to review in conjunction with this document.

4.168. These interface changes will require the submission of a change to Code Bodies and Codes (e.g. SEC - Smart Energy Code) documentation that defines the Supplier and DCC for CSS regarding obligations, processes and standards for the exchange of data. These changes will be defined through the Switching Programme's Regulatory workstream and actioned using the (existing) SCR mechanism.

4.169. At this early stage, it is not possible to fully define the technical architecture of the new interfaces with the CSS, however the following principles will apply and should guide impactors in their assessments:

- Data/message flows between the CSS and other systems are defined in the Switching Design Repository (ABACUS).
- Interface scheduling, sequencing and coordination is defined in Ref.[04], including the flow of individual messages between systems and any associated time dependencies for their processing.
- Business data will be delivered in XML format, message schemas defining the required structure and content for each XML message, will be produced as part of CSS Detailed Design.
- For the purposes of this solution, all systems/application components of the To-Be solution are 'black boxes' – their underlying technical architecture is beyond the scope of this document. However, they are assumed to be capable of exchanging data via the interfaces identified in this document, subject to re-engineering where required (see Assumption A002)
- No assumptions are made regarding the presence, capability or configuration of message oriented middleware or other B2B integration platforms.
- Systems participating in the E2E switching arrangements will require connection to a 'switching network', the design of which will be finalised as part of CSS Detailed Design.

- The Switching Network will implement access control and authentication mechanisms in accordance with requirements laid out in the E2E Security Architecture.
- All data exchanged with the CSS will occur through the private Switching Network.
- Validation and integrity checking will be performed for interfaces in accordance with the appropriate Security requirements, as defined in Ref.[07] and its related products.

Interface Patterns

4.170. Outbound interfaces from CSS have one of the following message interaction patterns:

- **Notifications** – a message between two systems that informs the recipient of an event and provides some related information in a structured form. CSS will issue a number of different types of Notification, which Recipients have no requirement to act on and may (or may not) choose to receive:
 - Switch request validated
 - Switch request confirmed (no objection raised)
 - Switch request secured (gate closure on D-1)
 - Agent update
 - Change of shipper
 - Change of domestic/non-domestic indicator
 - Initial registration
 - Switch Objected
 - Switch Withdrawn
 - Switch Annulled
 - Deactivate registration
 - The following table gives further detail on the different Notification types:

EVENT	NOTIFICATION
Switch request validated	Gaining supplier (Elec/Gas): Confirmation that their Switch Request has been validated and is being processed Gaining shipper (Gas): Notification of pending gain Losing shipper (Gas): Notification of pending loss
Switch request confirmed (no objection raised)	Gaining supplier (Elec/Gas): confirmation that Switch Request has not been objected to Gaining shipper (Gas): confirmation that Switch Request has not been objected to Losing supplier (Elec/Gas): confirmation that Switch Request has not been objected to Losing shipper (Gas): confirmation that Switch Request has not been objected to Losing agent: Notification of pending loss
Switch request secured (gate closure on D-1)	Gaining supplier (Elec/Gas): Notification that Switch Request has become irrevocable

	<p>Gaining shipper (Gas): Notification that Switch Request has become irrevocable</p> <p>Losing supplier (Elec/Gas): Notification that Switch Request has become irrevocable</p> <p>Losing shipper (Gas): Notification that Switch Request has become irrevocable</p> <p>All Losing Agents: Notification that Switch Request has become irrevocable</p>
Initial registration	<p>Gaining supplier (Elec/Gas): notification that registration has been secured (supplier responsibility)</p> <p>Gaining shipper (Gas): notification of a site/RMP gain</p>
Switch Objected	<p>Gaining supplier (Elec/Gas): notification of switch cancellation</p> <p>Losing supplier (Elec/Gas): notification of switch cancellation</p> <p>Gaining shipper (Gas): notification of switch cancellation</p> <p>Losing shipper (Gas): notification of switch cancellation</p>
Switch Withdrawn Switch Annulled	<p>Gaining supplier (Elec/Gas): notification of switch cancellation</p> <p>Losing supplier (Elec/Gas): notification of switch cancellation</p> <p>Gaining shipper (Gas): notification of switch cancellation</p> <p>Losing shipper (Gas): notification of switch cancellation</p> <p>Gaining DC/DA: notification of switch cancellation</p> <p>Losing DC/DA: notification of switch cancellation</p>
Deactivate registration	<p>Current supplier (Elec/Gas): notification of registration deactivation</p> <p>Current shipper (Gas): notification of registration deactivation (to be used for billing)</p> <p>MEM: notification of registration deactivation</p> <p>MAP: notification of registration deactivation</p>

- **Enquiry** – a message between two systems that informs the recipient of an event and provides the recipient with an opportunity to respond in a structured form (within a fixed timescale). The response may or may not be mandatory, but confirmation of receipt is required, and the enquiry interfaces are listed in the following table:

EVENT	ENQUIRY
Switch request validated	Losing supplier (Elec/Gas): Invitation to Intervene

- **Synchronisation** – a formal mechanism designed to keep information shadowed in one system in line with that mastered in other systems. A synchronisation may take place before (and after) an event/activity to ensure that all involved parties share the same information. The synchronisation messages from CSS are listed in the following table:

EVENT	SYNCHRONISATION
Switch request validated	ECOES (Elec): Synchronisation of pending Switch Request

	Gas Data Enquiry Service (Gas): Synchronisation of pending Switch Request
Switch request confirmed (no objection raised)	ECOES (Elec): Switch Request state update (confirmed) Gas Data Enquiry Service (Gas): Switch Request status update (confirmed) DCC: Synchronisation of pending switch (used to update access controls) Gas Central Data Service (Gas): Synchronisation of pending switch(used to update access controls to allow agent/settlement updates) Meter Point Administration Service: Synchronisation of pending switch (used to update access controls to allow agent/settlement updates)
Switch request secured (gate closure on D-1)	ECOES (Elec): Switch Request status update (secured) Gas Data Enquiry Service (Gas): Switch Request state update (secured) DCC: Synchronisation that Switch Request has become irrevocable (used to update access controls) Gas Central Data Service (Gas): Synchronisation that Switch Request has become irrevocable (used to update access controls) Meter Point Administration Service: Synchronisation that Switch Request has become irrevocable (used to update access controls)
Agent update	DCC: used to update access controls (for agents)
Change of shipper	Gas Central Data Service: Used to update access controls ECOES (Elec): used to reflect update Gas Data Enquiry Service (Gas): used to reflect update
Change of domestic/non-domestic indicator	Gas Central Data Service (Gas): used to update settlement values Meter Point Administration Service (Elec): used to update settlement values DCC: stored in system ECOES (Elec): used to reflect update Gas Data Enquiry Service (Gas): used to reflect update
Switch Objected	ECOES (Elec): Synchronisation of switch cancellation Gas Data Enquiry Service (Gas): Synchronisation of switch cancellation
Switch Withdrawn Switch Annulled	Gas Central Data Service (Gas): Synchronisation of switch cancellation Meter Point Administration Service (Elec): Synchronisation of switch cancellation ECOES (Elec): Synchronisation of switch cancellation Gas Data Enquiry Service (Gas): Synchronisation of switch cancellation Losing MEM: Synchronisation of switch cancellation DCC: Synchronisation of switch cancellation
Deactivate registration	DCC: Synchronisation of registration deactivation ECOES (Elec): Synchronisation of registration deactivation Gas Data Enquiry Service (Gas): Synchronisation of registration deactivation

4.171. Inbound interfaces to CSS follow the **Update** interaction pattern:

- **Update** - A mechanism to issue notifications of proposed changes to switching related master data which must be processed by Central Data Services (CSS, Gas Central Data Service, Meter Point Administration Service, DCC Data Service, Gas Data Enquiry Service, ECOES). Acknowledgment of receipt is mandatory, and a formal response message may be required following processing, but is optional. The receiving (Central) systems must maintain a record of all Updates received and applied.

EVENT	UPDATE
AssetDeployment	Updates of Asset details from MAP to CSS.
MeteringPointStatus	Meter status updates from DNOs to Meter Point Administration Service.
MeteringReadings	Meter reading updates from DCs to DAs.
PremisesAddress	Bulk address database updates for CSS, from the Premises Address Service.
RegMgmtRequestSubmission	The submission of Switch requests or Switch Request Withdrawals from Suppliers to CSS.
SupplyMeterPointStatus	Supply meter point status updates from GTs to Gas Central Data Service.

Interface Operation and Processing

4.172. The immediacy with which a system (application) is required to process data received via an interface is determined by the requirements of the business process which it is enabling – as described in the Operational Choreography Product Ref.[04].

4.173. Consequently, the interfaces used to exchange data between systems must also support these requirements and their operation will fall under one of the following 2 categories:

- **Batch** – A mechanism in which data items, messages or transactions are packaged up into ‘batches’ for transmission to (& processing by) the target system, usually according to a defined schedule (e.g. daily, hourly or per n data items/messages/transactions). It should be noted that the target system may be configured to process the entire batch immediately, or may defer processing until some other pre-defined condition is met.
- **Real Time** – Real Time interface operation features mechanisms to enable the source system to transmit individual (complete) data items/messages/transactions to the target system as soon as they are generated. As with batch interfaces, the target system may choose to process the incoming messages as soon as possible, or employ a queuing mechanism to hold them for later processing.

4.174. The following table summarises the new interfaces being implemented as part of the To-Be Switching Arrangements, the pattern which each will follow and the type of interface necessary to support the Operational Choreography requirements.

INTERFACE NAME	FROM	TO	INTERFACE PATTERN	OP-CHOR. REQ.	OPERATIONAL CHOREOGRAPHY COMMENT
AssetDeployment	MAP	CSS	Update	Batch	Updates of Asset details
CommsHubDataLink	Smart Metering	CSS	Synchronisation	Batch	RDP updates from DCC Data Service
DADCAppointment	Meter Point Administration Service	CSS	Synchronisation	Batch	Synchronisation of DA and/or DC appointments
ElectricityRegistration	CSS	ECOES	Synchronisation	Real-time	Delivery of daily electricity enquiry information
ElectricityRetailMarketData	Meter Point Administration Service	ECOES	Synchronisation	Real-time	Settlement details
GasRegistration	CSS	Gas Data Enquiry Service	Synchronisation	Real-time	Delivery of daily Gas enquiry information
GasRetailMarketData	Gas Central Data Service	Gas Data Enquiry Service	Synchronisation	Real-time	Settlement details
InvitationToIntervene	CSS	Losing Supplier	Enquiry	Real-time	Invitation to Losing Supplier to respond with an Objection or Annulment before the windows close.
MAPOwnership	Meter Point Administration Service	CSS	Synchronisation	Batch	Meter Asset Provider Ownership information
	Gas Central Data Service	CSS	Synchronisation	Batch	Meter Asset Provider Ownership information
MEMAppointment	Meter Point Administration Service	CSS	Synchronisation	Real-time	For DCC-enrolled meters, if an agent is needed for the RMP (unlikely but possible), then this is required before the switch is effected; the new agent must be sent from CSS to Smart Metering so that the new agent is allowed to take a meter reading
	Gas Central Data Service	CSS	Synchronisation	Real-time	As for MEMAppointment for the Meter Point Administration Service

MeteringPointStatus	DNO	Meter Point Administration Service	Update	Batch	Meter status updates from DNOs
MeteringPointSync	Meter Point Administration Service	CSS	Synchronisation	Batch	Synchronisation of new RMPs
MeteringReadings	DC	DA	Update	Batch	Meter readings
PremisesAddress	Premises Address	CSS	Update	Batch	Bulk address database updates for CSS.
RegistrationSync	CSS	Meter Point Administration Service Gas Central Data Service	Synchronisation	Batch	Synchronisation of Registrations between CSS and Meter Point Administration Service, Gas Central Data Service.
RegMgmtRequestNotification: Switch request validated	CSS	Gaining supplier Gaining shipper Losing supplier Losing shipper ECOES Gas Data Enquiry Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Switch request confirmed (no objection raised)	CSS	Gaining supplier Gaining shipper Losing supplier Losing shipper Losing agent ECOES Gas Data Enquiry Service DCC Data Service Gas Central Data Service Meter Point Administration Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.

RegMgmtRequestNotification: Switch request secured (gate closure on D-1)	CSS	Gaining supplier Gaining shipper Losing supplier Losing shipper Losing agent ECOES Gas Data Enquiry Service DCC Data Service Gas Central Data Service Meter Point Administration Service MAP	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Agent Update	CSS	DCC Data Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Change of shipper	CSS	Gas Central Data Service ECOES Gas Data Enquiry Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Change of domestic/non-domestic indicator	CSS	Gas Central Data Service Meter Point Administration Service DCC Data Service ECOES Gas Data Enquiry Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification:	CSS	Gaining Supplier	Notification	Real-time	Notification of status changes to registration.

Initial registration		Gaining Shipper			Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Switch Objected	CSS	Gaining supplier Gaining shipper Losing supplier Losing shipper	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Switch Withdrawn, Switch Annulled	CSS	Gaining supplier Losing supplier Gaining shipper Losing shipper Gaining DC/DA Losing DC/DA Gas Central Data Service Meter Point Administration Service ECOES Gas Data Enquiry Service Losing MEM DCC Data Service	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.
RegMgmtRequestNotification: Deactivate Registration	CSS	Current supplier Current shipper MEM Gas Central Data Service Meter Point Administration Service DC/DA DCC Data Service ECOES	Notification	Real-time	Notification of status changes to registration. Issued from CSS in Real Time, no dependency on processing.

		Gas Data Enquiry Service MAP			
RegMgmtRequestSubmission	Supplier	CSS	Update	Real-time	Switch requests, Switch Request Withdrawals
RetailEnergyLocation	CSS	ECOES	Synchronisation	Batch	Updating meter address details in ECOES
	CSS	Gas Data Enquiry Service	Synchronisation	Batch	Updating meter address details in Gas Data Enquiry Service
RMPRegApptSync	CSS	Smart Metering	Synchronisation	Real-time	Smart metering will need to know about the MOP to give it access to the meter to take readings etc.
SupplyMeterPointStatus	GT	Gas Central Data Service	Update	Batch	Supply meter point status updates from GTs
SupplyMeterPointSync	CSS	Gas Central Data Service	Synchronisation	Batch	Synchronisation of new RMPs
SwitchIntervention	CSS	Supplier	Enquiry	Real-time	Required for Objection & Annulments
TPIElectricityEnquiry	ECOES	TPI	N/A	Real-time	ECOES to TPI
TPIGasEnquiry	Gas Data Enquiry Service	TPI	N/A	Real-time	Gas Data Enquiry Service to TPI

4.175. Further, implementation-level guidance regarding interface requirements is provided in the associated product DLS-4.1.7 Technology and Communications Standards, Ref.[05]. A full catalogue of interface types and the associated data items is provided in the following sub-sections.

Summary of System Impacts by Business Process

4.176. The information in the following table is a high-level summary of data mastered in the baselined E2E Detailed Design Models – see Ref.[02]:

- Business Process
- Systems Interaction Sequence Diagrams
- Interface Specifications

4.177. It reflects the baselined model at the time of issue of this document, which may be subject to further change.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
1.1 Register new BLPU	Premises Address Service	Send BLPU data to CSS (new data and interface)	New interface between Premises Address Service and CSS: PremisesAddress
1.1 Register new BLPU	CSS	Receive BLPU data from Premises Address Service (new data and interface)	New functionality required within CSS. New interface: PremisesAddress
1.2 Create RMP	CSS	Receive RMP data from MPAS/Gas Central Data Service (new interface)	New functionality required within CSS. New interface: MeteringPointSync (MPAS) SupplyMeterPointSync (Gas Central Data Service)
1.2 Create RMP	Meter Point Administration Service	Send RMP data to CSS (new interface)	New functionality required within Meter Point Administration Service. New interface: MeteringPointSync
1.2 Create RMP	Gas Central Data Service	Send RMP data to CSS (new interface)	New functionality required within Gas Central Data Service. New interface: SupplyMeterPointSync
1.2.1 Request creation of associated RMP	Gaining Supplier Data Service Data Service	Identify RMPs to be Associated	New functionality may be required following detailed impact assessment by System Owners.
1.2.1 Request creation of associated RMP	Gaining Supplier Data Service	Identify 'Parent RMP' (new data)	New functionality may be required following detailed impact assessment by System Owners.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
1.2.1 Request creation of associated RMP	Gaining Supplier Data Service	Create Association in Meter Point Administration Service (new data and potentially interface change)	New functionality may be required following detailed impact assessment by System Owners. Possible change to existing interface: DTC, D0168
1.2.1 Request creation of associated RMP	CSS	Receive RMP data from Meter Point Administration Service (new interface)	New functionality required within CSS. New interface: MeteringPointSync
1.2.1 Request creation of associated RMP	CSS	New structure for holding 'RMP Associations'	New functionality required within CSS.
1.2.1 Request creation of associated RMP	Meter Point Administration Service	Send RMP Data to CSS (new interface)	New functionality required within Meter Point Administration Service. New interface: MeteringPointSync
1.3 Process new Meter Point Location	CSS	Determine and establish links	New functionality required within CSS.
1.4 Initial Registration	Gaining Supplier Data Service	Send initial registration request to CSS (changes to interface and receiving Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
1.4 Initial Registration	Gaining Supplier Data Service	Receive validation failure Notifications (changes to interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
1.4 Initial Registration	CSS	Process request, set up and manage Registration Request and Registration objects	New functionality required within CSS.
1.4 Initial Registration	CSS	Send validation failure Notifications (as required) (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
1.4.1 Agree terms with Consumer and prepare initial registration	Gaining Supplier Data Service	Prepare initial registration request to submit to CSS (changes to data)	New functionality may be required following detailed impact assessment by System Owners.
1.4.8 Send Initial Registration confirmed notifications and synchronise	Gaining Supplier Data Service	Receive initial registration confirmed Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
1.4.8 Send Initial Registration confirmed notifications and synchronise	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
1.4.8 Send Initial Registration confirmed notifications and synchronise	CSS	Synchronise initial registration (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
1.4.8 Send Initial Registration confirmed notifications and synchronise	Meter Point Administration Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Meter Point Administration Service. New interface: RegistrationSync
1.4.8 Send Initial Registration confirmed notifications and synchronise	Gas Central Data Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Gas Central Data Service. New interface: RegistrationSync
1.4.8 Send Initial Registration confirmed notifications and synchronise	Shipper Data Service	Receive initial registration confirmed Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within Shipper Data Service. New interface: RegMgmtRequestNotification
1.4.8 Send Initial Registration confirmed notifications and synchronise	Data Collection Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within DCC Data Service. New interface: RMPRegApptSync
1.4.8 Send Initial Registration confirmed notifications and synchronise	Gas Data Enquiry Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Shipper Data Service. New interface: GasRegistration
1.4.8 Send Initial Registration confirmed notifications and synchronise	ECOES	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Shipper Data Service. New interface: ElectricityRegistration
1.5 Post Initial Registration Administration	Gas Central Data Service	Confirm future Energy Supplier and Shipper responsibility with Shipper (possibly new data / data mastership and interface)	New functionality may be required within Gas Central Data Service, following detailed impact assessment by System Owners.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
1.5 Post Initial Registration Administration	Gas Central Data Service	Confirm settlement parameters with Shipper (possibly new data / data mastership and interface)	New functionality may be required within Gas Central Data Service, following detailed impact assessment by System Owners.
1.5 Post Initial Registration Administration	Gas Central Data Service	Process settlement parameters and transport data	New functionality may be required within Gas Central Data Service, following detailed impact assessment by System Owners.
1.5 Post Initial Registration Administration	Shipper Data Service	Confirm initial Settlement parameters in Gas Central Data Service (possibly new data / data mastership and interface)	New functionality may be required within Gas Central Data Service, following detailed impact assessment by System Owners.
1.6 Execute Initial Registration	Gaining Supplier Data Service	Receive initial registration secured Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
1.6 Execute Initial Registration	CSS	Manage Registration Request object	New functionality required within CSS.
1.6 Execute Initial Registration	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
1.6 Execute Initial Registration	CSS	Synchronise initial registration (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
1.6 Execute Initial Registration	Meter Point Administration Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Meter Point Administration Service. New interface: RegistrationSync
1.6 Execute Initial Registration	Gas Central Data Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Gas Central Data Service. New interface: RegistrationSync

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
1.6 Execute Initial Registration	Shipper Data Service	Receive initial registration confirmed Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within Shipper Data Service. New interface: RegMgmtRequestNotification
1.6 Execute Initial Registration	Data Collection Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within DCC Data Service. New interface: RMPRegApptSync
1.6 Execute Initial Registration	Gas Data Enquiry Service	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within Gas Data Enquiry Service Data Service. New interface: GasRegistration
1.6 Execute Initial Registration	ECOES	Synchronisation of initial registration from CSS (new data / data mastership and interface)	New functionality required within ECOES. New interface: ElectricityRegistration
1.7 Post Initial Registration Execution Administration	Gaining Supplier Data Service	Update Meter Point Administration Service with MAP and Asset Details (moved from ECOES) or pass details to Shipper to update Gas Central Data Service (updated data / data mastership and interface)	New functionality may be required following detailed impact assessment by System Owners. Changes may be required to existing interface: DTC, D205
1.7 Post Initial Registration Execution Administration	CSS	Manage Registration Request and Registration objects	New functionality required within CSS.
1.7 Post Initial Registration Execution Administration	CSS	Receive MAP and Asset Details from Meter Point Administration Service/Gas Central Data Service (updated data / data mastership and new interface)	New functionality required within CSS. New interface: MAPOwnership
1.7 Post Initial Registration Execution Administration	CSS	Send Notification to MAP (updated or new data / data mastership and interface)	New functionality required within CSS. New interface: AssetDeployment
1.7 Post Initial Registration Execution Administration	Meter Point Administration Service	Taking over mastership of MAP and Asset Details from ECOES (including changes to	New functionality required within Meter Point Administration Service.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
		interfaces and access)	
1.7 Post Initial Registration Execution Administration	Meter Point Administration Service	Receive MAP and Asset Details from Energy Supplier (updated data / data mastership and interface)	New functionality required within Meter Point Administration Service. Possible change to existing interface: DTC, D0205
1.7 Post Initial Registration Execution Administration	Meter Point Administration Service	Synchronise MAP and Asset Details with CSS (updated data / data mastership and new interface)	New functionality required within Meter Point Administration Service. New interface: MAPOwnership
1.7 Post Initial Registration Execution Administration	Gas Central Data Service	Addition of new field for MAP in Asset Details (new data / data mastership and interface)	New functionality required within Gas Central Data Service. New interface: MAPOwnership
1.7 Post Initial Registration Execution Administration	Gas Central Data Service	Receive MAP and Asset Details from Shipper (new data / data mastership and interface)	New functionality required within Gas Central Data Service. Possible change to existing interface: UNC, JOB
1.7 Post Initial Registration Execution Administration	Gas Central Data Service	Synchronisation of MAP and Asset Details to CSS (new interface)	New functionality required within Gas Central Data Service. New interface: MAPOwnership
1.7 Post Initial Registration Execution Administration	Shipper Data Service	Update MAP and Asset Details in Gas Central Data Service (updated data and interface)	New functionality required within Shipper Data Service. Changes may be required to the existing interface: UNC, JOB
1.7 Post Initial Registration Execution Administration	MAP Data Service	Receive Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within MAP Data Service. New interface: AssetDeployment
1.7.3 Update SMART meter credentials	Gaining Supplier Data Service	Initiate Installation and Commissioning with DCC Data Service	Functionality required within Gaining Supplier Data Service.
1.7.3 Update SMART meter credentials	Data Collection Service	Execute Installation and Commissioning	Functionality required within DCC Data Service. Possible change to existing DUIS interfaces: 1.1.1, 1.2.1, 1.6, 6.23, 8.1.1
2.1 Pre-contract Activities	No impact		
2.2 Agree terms and prepare switch	Gaining Supplier Data Service	Prepare Switch Request to submit to CSS (changes to data)	Functionality required within DCC Data Service.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.3 Request Switch	Gaining Supplier Data Service	Send individual Switch Request to CSS (changes to interface and receiving Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.3 Request Switch	Gaining Supplier Data Service	Send Switch Requests to CSS with or without OFAF (changes to interface and receiving Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.3 Request Switch	Gaining Supplier Data Service	Receive validation failure Notifications (changes to interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegRequestMgmtNotification
2.3 Request Switch	Losing Supplier Data Service	Receive Invitation to Intervene Enquiry (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: InvitationToIntervene
2.3 Request Switch	Losing Supplier Data Service	Acknowledge Invitation to Intervene Enquiry (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: InvitationToIntervene
2.3 Request Switch	Losing Supplier Data Service	Notify objection status to CSS (new interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: SwitchIntervention
2.3 Request Switch	CSS	Process individual Switch Request, set up and manage Registration Request and Registration objects	New functionality required within CSS.
2.3 Request Switch	CSS	Process linked Switch Requests with OFAF set, set up and manage Registration Request and Registration objects	New functionality required within CSS.
2.3 Request Switch	CSS	Determine objection window and send Invitation to Intervene Enquiries (new data and interface)	New functionality required within CSS. New interface: SwitchIntervention
2.3 Request Switch	CSS	Send validation failure Notifications (as required) (new data and interface)	New functionality required within CSS. New interface:

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
			RegMgmtRequestNotification
2.3 Request Switch	CSS	Process Related RMPs - create and link associated requests for Child RMPs	New functionality required within CSS.
2.3.8 Issue switch validated notifications and synchronise	Gaining Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.8 Issue switch validated notifications and synchronise	Losing Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.8 Issue switch validated notifications and synchronise	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.3.8 Issue switch validated notifications and synchronise	CSS	Synchronise Switch Request (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.3.8 Issue switch validated notifications and synchronise	Shipper Data Service (Gaining & Losing)	Receive switch validated Notification from CSS - no action required (new data / data mastership and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.8 Issue switch validated notifications and synchronise	Gas Data Enquiry Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Data Enquiry Service. New interface: GasRegistration
2.3.8 Issue switch validated notifications and synchronise	ECOES	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the ECOES. New interface: ElectricityRegistration
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration	Gaining Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
Lifecycle to Cancelled and notify			
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration Lifecycle to Cancelled and notify	Losing Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration Lifecycle to Cancelled and notify	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration Lifecycle to Cancelled and notify	CSS	Synchronise Switch Request (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration Lifecycle to Cancelled and notify	Shipper Data Service (Gaining & Losing)	Receive switch validated Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Shipper Data Service. New interface: RegMgmtRequestNotification
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration Lifecycle to Cancelled and notify	Gas Data Enquiry Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within CSS. New interface: GasRegistration
2.3.15 Set Registration Request Lifecycle Status to Rejected, Registration	ECOES	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within CSS. New interface: ElectricityRegistration

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
Lifecycle to Cancelled and notify			
2.3.23 Issue switch confirmed notifications and synchronise	Gaining Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.23 Issue switch confirmed notifications and synchronise	Losing Supplier Data Service	Receive switch validated Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.3.23 Issue switch confirmed notifications and synchronise	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.3.23 Issue switch confirmed notifications and synchronise	CSS	Synchronise Switch Request (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.3.23 Issue switch confirmed notifications and synchronise	Meter Point Administration Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Meter Point Administration Service. New interface: RegistrationSync
2.3.23 Issue switch confirmed notifications and synchronise	Gas Central Data Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: RegistrationSync
2.3.23 Issue switch confirmed notifications and synchronise	Gaining and Losing Shipper Data Service	Receive switch confirmed Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Shipper Data Service(s). New interface: RegMgmtRequestNotification
2.3.23 Issue switch confirmed notifications and synchronise	Losing MEM Data Service	Receive switch confirmed Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MEM Data Service. New interface: RegMgmtRequestNotification

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.3.23 Issue switch confirmed notifications and synchronise	Losing Data Collection Service and Losing Data Aggregation Service	Receive switch confirmed Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the DC / DA Data Service. New interface: RegMgmtRequestNotification
2.3.23 Issue switch confirmed notifications and synchronise	Data Collection Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: RMPRegApptSync
2.3.23 Issue switch confirmed notifications and synchronise	Gas Data Enquiry Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Data Enquiry Service. New interface: GasRegistration
2.3.23 Issue switch confirmed notifications and synchronise	ECOES	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the ECOES. New interface: ElectricityRegistration
2.4 Post Confirmed Switch Admin	Gas Central Data Service	Confirm future Energy Supplier and Shipper responsibility with Shipper (new data / data mastership and interface)	New functionality may be required within following detailed impact assessment by System Owners.
2.4 Post Confirmed Switch Admin	Gas Central Data Service	Confirm settlement parameters with Shipper (new data / data mastership and interface)	New functionality may be required within following detailed impact assessment by System Owners.
2.4 Post Confirmed Switch Admin	Gas Central Data Service	Process settlement parameters and transport data	New functionality may be required within following detailed impact assessment by System Owners.
2.4 Post Confirmed Switch Admin	Shipper Data Service	Confirm Settlement parameters in Gas Central Data Service (new data / data mastership and interface)	New functionality may be required within following detailed impact assessment by System Owners.
2.4.2 Commence Supplier activities related to gain for electricity RMP	Gaining Supplier Data Service	Confirm electricity settlement parameters in Meter Point Administration Service (potential updates to interface)	New functionality may be required within following detailed impact assessment by System Owners.
2.4.3 Commence Supplier activities related to loss for electricity RMP	No impact		
2.4.9 Commence Supplier activities	No impact		

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
related to gain for gas RMP			
2.4.10 Commence Supplier activities related to loss for gas RMP	No impact		
2.5 Execute Switch	Gaining Supplier Data Service	Receive Switch Secured Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.5 Execute Switch	Gaining Supplier Data Service	Initiate Transitional Change of Supplier (TCoS)	(Existing) Functionality required within the Supplier Data Service.
2.5 Execute Switch	Losing Supplier Data Service	Receive Switch Secured Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.5 Execute Switch	Losing Supplier Data Service	Change mode from prepayment to credit (if required)	(Existing) Functionality required within the Supplier Data Service.
2.5 Execute Switch	CSS	Manage Registration Request and Registration object	New functionality required within CSS.
2.5 Execute Switch	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.5 Execute Switch	CSS	Synchronise Registration (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.5 Execute Switch	Meter Point Administration Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Meter Point Administration Service. New interface: RegRequestSync
2.5 Execute Switch	Gas Central Data Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: RegRequestSync

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.5 Execute Switch	Gas Central Data Service	Apply settlement and transportation parameters	New functionality required within the Gas Central Data Service.
2.5 Execute Switch	Gaining and Losing Shipper Data Service	Receive Switch Secured Notification from CSS - no action required (new data / data mastership and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.5 Execute Switch	Losing MEM Data Service	Receive Switch Secured Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MEM Data Service. New interface: RegMgmtRequestNotification
2.5 Execute Switch	Losing Data Collection Service and Losing Data Aggregation Service	Receive Switch Secured Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the DC / DA Data Service(s). New interface: RegMgmtRequestNotification
2.5 Execute Switch	Data Collection Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: RMPRegApptSync
2.5 Execute Switch	Data Collection Service	Change mode from prepayment to credit (if required)	Functionality required within the DCC Data Service.
2.5 Execute Switch	Data Collection Service	Execute TCoS	Functionality required within the DCC Data Service.
2.5 Execute Switch	Gas Data Enquiry Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Data Enquiry Service. New interface: GasRegistration
2.5 Execute Switch	ECOES	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the ECOES. New interface: ElectricityRegistration
2.5 Execute Switch	MAP Data Service	Receive Switch Secured Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MAP Data Service. New interface: AssetDeployment
2.6 Post Switch Execution Admin	CSS	Manage Registration Request and Registration object	New functionality required within CSS.
2.6.1 Obtain closing switch read for SMETS2 metering	No impact		
2.6.2 Obtain opening switch	No impact		

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
read for SMETS2 metering			
2.7 Switch Request Withdrawal	Gaining Supplier Data Service	Send withdrawal request to CSS (changes to interface and receiving Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.7 Switch Request Withdrawal	Gaining Supplier Data Service	Receive Validation Failure Notifications (changes to interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.7 Switch Request Withdrawal	CSS	Process individual request, manage Registration Request and Registration objects	New functionality required within CSS.
2.7 Switch Request Withdrawal	CSS	Process linked requests with OFAF set, manage Registration Request and Registration objects	New functionality required within CSS.
2.7 Switch Request Withdrawal	CSS	Process linked requests with related RMPs, manage Registration Request and Registration objects	New functionality required within CSS.
2.7 Switch Request Withdrawal	CSS	Send Validation Failure Notifications (as required) (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.7 Switch Request Withdrawal	CSS	Determine recipients of Notifications and Synchronisation (based on Switch Request Status)	New functionality required within CSS.
2.7.11 Issue switch rejected notification for previously confirmed switch	Gaining Supplier Data Service	Receive Switch Rejected Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.7.11 Issue switch rejected notification for previously confirmed switch	Losing Supplier Data Service	Receive Switch Rejected Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.7.11 Issue switch rejected notification for previously confirmed switch	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.7.11 Issue switch rejected notification for previously confirmed switch	CSS	Synchronise Switch Request (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.7.11 Issue switch rejected notification for previously confirmed switch	Meter Point Administration Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Meter Point Administration Service. New interface: RegistrationSync
2.7.11 Issue switch rejected notification for previously confirmed switch	Gas Central Data Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: RegistrationSync
2.7.11 Issue switch rejected notification for previously confirmed switch	Gaining and Losing Shipper Data Service	Receive Switch Rejected Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Shipper Data Service. New interface: RegMgmtRequestNotification
2.7.11 Issue switch rejected notification for previously confirmed switch	Losing MEM Data Service	Receive Switch Rejected Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MEM Data Service. New interface: RegMgmtRequestNotification
2.7.11 Issue switch rejected notification for previously confirmed switch	Losing Data Collection Service / Data Aggregation Service	Receive Switch Rejected Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the DC / DA Data Service(s). New interface: RegMgmtRequestNotification
2.7.11 Issue switch rejected notification for previously confirmed switch	Data Collection Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: RMPRegApptSync
2.7.11 Issue switch rejected notification for previously confirmed switch	Gas Data Enquiry Service	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the Gas Data Enquiry Service. New interface: GasRegistration
2.7.11 Issue switch rejected notification for previously confirmed switch	ECOES	Synchronisation of Switch Request from CSS (new data / data mastership and interface)	New functionality required within the ECOES. New interface: ElectricityRegistration

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.8 Switch Annulment	Losing Supplier Data Service	Send annulment request to CSS (changes to interface and receiving Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: SwitchIntervention
2.8 Switch Annulment	Losing Supplier Data Service	Receive Validation Failure Notifications (changes to interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.8 Switch Annulment	CSS	Process individual request, manage Registration Request and Registration objects	New functionality required within CSS.
2.8 Switch Annulment	CSS	Process linked requests with OFAF set, manage Registration Request and Registration objects	New functionality required within CSS.
2.8 Switch Annulment	CSS	Process linked requests with related RMPs, manage Registration Request and Registration objects	New functionality required within CSS.
2.8 Switch Annulment	CSS	Send Validation Failure Notifications (as required) (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestSubmission
2.8 Switch Annulment	CSS	Determine recipients of Notifications and Synchronisation (based on Switch Request Status)	New functionality required within CSS.
2.9 Erroneous Switch Avoidance and Resolution	Consumer	Notification of outcome from Energy Supplier	New functionality required within the Supplier Data Service.
2.9 Erroneous Switch Avoidance and Resolution	Gaining Supplier Data Service	Submit Switch Request Withdrawal (see 2.7 for details)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.9 Erroneous Switch Avoidance and Resolution	Gaining Supplier Data Service	Notify customer of outcome	New functionality may be required following detailed impact assessment by System Owners.
2.9 Erroneous Switch Avoidance and Resolution	Gaining Supplier Data Service	Provide Meter Readings to Losing Supplier Data Service	New functionality may be required following detailed impact assessment by System Owners.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.9 Erroneous Switch Avoidance and Resolution	Losing Supplier Data Service	Submit Switch Request Withdrawal (see 2.8 for details)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.9 Erroneous Switch Avoidance and Resolution	Losing Supplier Data Service	Submit Switch Request (see 2.3 for details) - setting Erroneous Switch Resolution Indicator to Y	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.9 Erroneous Switch Avoidance and Resolution	Losing Supplier Data Service	Notify customer of outcome	New functionality may be required following detailed impact assessment by System Owners.
2.9 Erroneous Switch Avoidance and Resolution	Losing Supplier Data Service	Obtain Meter Readings for continuous settlement	New functionality may be required following detailed impact assessment by System Owners.
2.9 Erroneous Switch Avoidance and Resolution	Gas Central Data Service	Provide Meter Readings to Losing Supplier Data Service	New functionality may be required following detailed impact assessment by System Owners.
2.9 Erroneous Switch Avoidance and Resolution	Data Collection Service	Provide Meter Readings to Losing Supplier Data Service	New functionality may be required following detailed impact assessment by System Owners.
2.10 Cooling Off	Consumer	Notification of outcome from Energy Supplier	New functionality required within the Supplier Data Service.
2.10 Cooling Off	Consumer	Notification of options from Energy Supplier	New functionality required within the Supplier Data Service.
2.10 Cooling Off	Gaining Supplier Data Service	Submit Switch Request Withdrawal (see 2.7 for details)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.10 Cooling Off	Gaining Supplier Data Service	Notify customer of outcome	New functionality may be required following detailed impact assessment by System Owners.
2.10 Cooling Off	Gaining Supplier Data Service	Notify customer of options	New functionality may be required following detailed impact assessment by System Owners.
2.10 Cooling Off	Losing Supplier Data Service	Submit Switch Request (see 2.3 for details)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.11 Notify Appointment of new Supplier Agent	CSS	Synchronisation of Agent Appointment from Meter Point Administration	New functionality required within CSS. New interfaces:

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
		Service/Gas Central Data Service (new interface)	RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service)
2.11 Notify Appointment of new Supplier Agent	CSS	Synchronisation of MEM Appointment to DCC Data Service (new interface)	New functionality required within DCC Data Service. New interfaces: RMPRegApptSync
2.11 Notify Appointment of new Supplier Agent	Meter Point Administration Service	Synchronisation of Agent Appointment to CSS (new interface)	New functionality required within Meter Point Administration Service. New interfaces: RegistrationSync
2.11 Notify Appointment of new Supplier Agent	Gas Central Data Service	Synchronisation of Agent Appointment to CSS (new interface)	New functionality required within Gas Central Data Service. New interfaces: RegistrationSync
2.12 Update Asset Deployment Information Following Replacement	Gaining Supplier Data Service	Update Meter Point Administration Service with MAP and Asset Details (moved from ECOES) or pass details to Shipper to update Gas Central Data Service (updated data / data mastership and interface)	New functionality may be required following detailed impact assessment by System Owners. Update existing interface(s) to Gas Central Data Service or Meter Point Administration Service to include the new data items. Potential changes re: DTC: D0142, D0150, D0205 DFC: D5030, D5044, D5045, D5046
2.12 Update Asset Deployment Information Following Replacement	CSS	Receive MAP and Asset Details from Meter Point Administration Service/Gas Central Data Service (updated data / data mastership and interface)	New functionality required within CSS. New interface: MAPOwnership
2.12 Update Asset Deployment Information Following Replacement	CSS	Send Notification to MAP (updated data / data mastership and interface)	New functionality required within CSS. New interface: AssetDeployment
2.12 Update Asset Deployment Information Following Replacement	Meter Point Administration Service	Taking over mastership of MAP and Asset Details from ECOES (including changes to interfaces and access) (updated data / data mastership and interface)	New functionality required in the Meter Point Administration Service. Potential changes re: DTC: D0142, D0150, D0205

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.12 Update Asset Deployment Information Following Replacement	Meter Point Administration Service	Receive MAP and Asset Details from Energy Supplier (updated data / data mastership and interface)	New functionality required in the Meter Point Administration Service. Potential changes re: DTC: D0142, D0150, D0205
2.12 Update Asset Deployment Information Following Replacement	Meter Point Administration Service	Synchronise MAP and Asset Details with CSS (new interface)	New functionality required within the Meter Point Administration Service. New interface: MAPOwnership
2.12 Update Asset Deployment Information Following Replacement	Gas Central Data Service	Addition of new field for MAP in Asset Details (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: Potential changes re: DFC: D5030, D5044, D5045, D5046
2.12 Update Asset Deployment Information Following Replacement	Gas Central Data Service	Receive MAP and Asset Details from Shipper (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. Potential changes re: DFC, D5046
2.12 Update Asset Deployment Information Following Replacement	Gas Central Data Service	Synchronisation of MAP and Asset Details to CSS (new interface)	New functionality required within the Gas Central Data Service. New interface: MAPOwnership
2.12 Update Asset Deployment Information Following Replacement	Shipper Data Service	Update MAP and Asset Details in Gas Central Data Service (updated interface)	New functionality required within the Shipper Data Service. Potential changes re: DFC: D5046
2.12 Update Asset Deployment Information Following Replacement	Installed and Removed MAP Data Service	Receive Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MAP Data Service. New interface: RegMgmtRequestNotification
2.13 Change of asset ownership	Gaining Supplier Data Service	Update MAP details in Meter Point Administration Service/Gas Central Data Service (updated data / data mastership and interface)	New functionality may be required following detailed impact assessment by System Owners. Update existing interface(s) to Gas Central Data Service or Meter Point Administration Service to include the new data items. Potential changes re: DTC: D0142, D0150, D0205 DFC: D5030, D5044, D5045, D5046
2.13 Change of asset ownership	CSS	Receive MAP and Asset Details from Meter Point Administration Service/Gas Central Data Service	New functionality required within CSS. New interface: MAPOwnership

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
		(updated data / data mastership and interface)	
2.13 Change of asset ownership	CSS	Send Notification to MAP (updated data / data mastership and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.13 Change of asset ownership	Gaining and Losing MAP	Receive Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Supplier Data Service. New interface: RegMgmtRequestNotification
2.14 Update RMP	CSS	Synchronisation of Metering Point Details from Meter Point Administration Service (new interface)	New functionality required within CSS. New interface: MeteringPointSync
2.14 Update RMP	CSS	Synchronisation of Supply Meter Point Details from Gas Central Data Service (new interface)	New functionality required within DCC Data Service. New interface: SupplyMeterPointSync
2.14 Update RMP	Meter Point Administration Service	Synchronisation of Metering Point Details to CSS (new data / data mastership and interface)	New functionality required within Meter Point Administration Service. New interface: MeteringPointSync
2.14 Update RMP	Gas Central Data Service	Synchronisation of Supply Meter Point Details to CSS (new interface)	New functionality required within Gas Central Data Service. New interface: SupplyMeterPointSync
2.15 Process Meter Point Location update	CSS	Determine and establish links	New functionality required within CSS.
2.16 Process BLPU update	Premises Address Service	Send BLPU data to CSS (new data and interface)	New functionality required within Premises Address Service. New interface: PremisesAddress
2.16 Process BLPU update	CSS	Receive BLPU data from Premises Address Service (new data and interface)	New functionality required within CSS. New interface: PremisesAddress
2.16 Process BLPU update	CSS	Synchronise BLPU and Address Data to ECOES / Gas Data Enquiry Service (new data and interface)	New functionality required within CSS. New interface: PremisesAddress
2.16 Process BLPU update	Gas Data Enquiry Service	Synchronise BLPU and Address Data from CSS (new data and interface)	New functionality required within Gas Data Enquiry Service Data Service. New interface:

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
			RetailEnergyLocation
2.16 Process BLPU update	ECOES	Synchronise BLPU and Address Data from CSS (new data and interface)	New functionality required within ECOES. New interfaces: RetailEnergyLocation
2.17 Process SMI update	CSS	Synchronise SMI data from DCC Data Service (new data and interface)	New functionality required within CSS. New interface: RMPRegApptSync
2.17 Process SMI update	CSS	Process data for crossed RMPs	New functionality required within CSS.
2.17 Process SMI update	Data Collection Service	Synchronise SMI data to CSS	New functionality required within CSS. New interface: RMPRegApptSync
2.18 Process Supplier incorrect address challenge	Gaining Supplier Data Service	Raise Service Management incident	Existing Service Mgmt. functionality
2.18 Process Supplier incorrect address challenge	CSS	Receive and resolve Service Management incident	New Service Mgmt. functionality
2.19 Change of Event or Alliance	Governance Data Service	Notify CSS of changes to licence status or sanctions	New functionality required within the Governance Data Service. Interfaces will be defined following completion of regulatory workstream.
2.19 Change of Event or Alliance	CSS	Receive Notification of changes to licence status or sanctions (new data and interface)	New functionality required within CSS. Interfaces will be defined following completion of regulatory framework.
2.19 Change of Event or Alliance	CSS	Receive Notification of changes to alliances (new data and interface)	New functionality required within CSS. Interfaces will be defined following completion of regulatory framework.
2.19 Change of Event or Alliance	Shipper Data Service	Notify CSS of changes to alliances (new data and interface)	New functionality required within the Shipper Data Service. Interfaces will be defined following completion of regulatory framework.
2.19 Change of Event or Alliance	DNO Data Service	Notify CSS of changes to alliances (new data and interface)	New functionality required within the DNO Data Service. Interfaces will be defined following completion of regulatory framework.
2.19 Change of Event or Alliance	GT Data Service	Notify CSS of changes to alliances (new data and interface)	New functionality required within the GT Data Service.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
			Interfaces will be defined following completion of regulatory framework.
2.20 Registration Event	Gaining Supplier Data Service	As registered energy supplier: Submit Registration Event to CSS (change of domestic / non-domestic indicator or shipper) (new interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
2.20 Registration Event	Gaining Supplier Data Service	Receive Validation Failure Notifications (new interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.20 Registration Event	CSS	Process request	New functionality required within CSS.
2.20 Registration Event	CSS	Send Validation Failure Notifications (as required)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.20.3 Issue registration event notifications and synchronise	Gaining Supplier Data Service	Receive Registration Event Notification from CSS - no action required	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
2.20.3 Issue registration event notifications and synchronise	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
2.20.3 Issue registration event notifications and synchronise	CSS	Synchronise Registration Event (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service & Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
2.20.3 Issue registration event notifications and synchronise	Meter Point Administration Service	Synchronisation of Registration Event from CSS (new data / data mastership and interface)	New functionality required within the Meter Point Administration Service. New interface: RegistrationSync

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
2.20.3 Issue registration event notifications and synchronise	Gas Central Data Service	Synchronisation of Registration Event from CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: RegistrationSync
2.20.3 Issue registration event notifications and synchronise	Shipper Data Service	Receive Registration Event Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Shipper Data Service. New interface: RegMgmtRequestNotification
2.20.3 Issue registration event notifications and synchronise	Data Collection Service	Synchronisation of Registration Event from CSS	New functionality required within the DCC Data Service. New interface: RMPRegApptSync
2.20.3 Issue registration event notifications and synchronise	Gas Data Enquiry Service	Synchronisation of Registration Event from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: GasRegistration
2.20.3 Issue registration event notifications and synchronise	ECOES	Synchronisation of Registration Event from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: ElectricityRegistration
3.1 Terminate RMP	CSS	Synchronisation of Metering Point Details from Meter Point Administration Service (new interface)	New functionality required within CSS. New interface: MeteringPointSync
3.1 Terminate RMP	CSS	Synchronisation of Supply Meter Point Details from Gas Central Data Service (new interface)	New functionality required within CSS. New interface: SupplyMeterPointSync
3.1 Terminate RMP	Meter Point Administration Service	Synchronisation of Metering Point Details to CSS (new interface)	New functionality required within the Meter Point Administration Service. New interface: MeteringPointSync
3.1 Terminate RMP	Gas Central Data Service	Synchronisation of Supply Meter Point Details to CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interface: SupplyMeterPointSync
3.2 Post RMP-termination Administration	CSS	Process RMP details and terminate in-flight Switch Requests (including those related by OFAF or Related RMPs)	New functionality required within CSS.

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
3.3 Deactivate Registration	Gaining Supplier Data Service	As registered energy supplier: Submit Registration Deactivation Request to CSS (new interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestSubmission
3.3 Deactivate Registration	Gaining Supplier Data Service	Receive Validation Failure Notifications (new interface and sending Data Service)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
3.3 Deactivate Registration	CSS	Process request, update registration object	New functionality required within CSS.
3.3 Deactivate Registration	CSS	Send Validation Failure Notifications (as required) (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	Gaining Supplier Data Service	Receive Deactivation Notification from CSS - no action required (new data and interface)	New functionality may be required following detailed impact assessment by System Owners. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	CSS	Publish Notifications (new data and interface)	New functionality required within CSS. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	CSS	Synchronise Switch Request (new data and interface)	New functionality required within CSS. New interfaces: RMPRegApptSync (DCC Data Service) RegistrationSync (Meter Point Administration Service and Gas Central Data Service) GasRegistration (Gas Data Enquiry Service) ElectricityRegistration (ECOES)
3.3.5 Issue registration inactive notifications and synchronise	Meter Point Administration Service	Synchronisation of Registration Status from CSS (new data / data mastership and interface)	New functionality required within the Meter Point Administration Service. New interfaces: RegistrationSync
3.3.5 Issue registration inactive notifications and synchronise	Gas Central Data Service	Synchronisation of Registration Status from CSS (new data / data mastership and interface)	New functionality required within the Gas Central Data Service. New interfaces: RegistrationSync

BUSINESS PROCESS NUMBER	IMPACTED DATA SERVICE	IMPACT SUMMARY	ASSOCIATED CHANGE OR INTERFACE
3.3.5 Issue registration inactive notifications and synchronise	Shipper Data Service	Receive Deactivation Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the Shipper Data Service. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	MEM Data Service	Receive Deactivation Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the MEM Data Service. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	Data Collection Service / Data Aggregation Service	Receive Deactivation Notification from CSS - no action required (new data / data mastership and interface)	New functionality required within the DC / DA Data Service. New interface: RegMgmtRequestNotification
3.3.5 Issue registration inactive notifications and synchronise	Data Collection Service	Synchronisation of Registration Status from CSS (new data / data mastership and interface)	New functionality required within the DCC Data Service. New interface: RMPRegApptSync
3.3.5 Issue registration inactive notifications and synchronise	Gas Data Enquiry Service	Synchronisation of Registration Status from CSS (new data / data mastership and interface)	New functionality required within the Gas Data Enquiry Service. New interface: GasRegistration
3.3.5 Issue registration inactive notifications and synchronise	ECOES	Synchronisation of Registration Status from CSS (new data / data mastership and interface)	New functionality required within the ECOES. New interface: ElectricityRegistration
4.1 Service request fulfilment	ECOES	Receive and resolve Service Request	Service Mgmt. functionality.
4.2 Incident resolution	ECOES	Receive and resolve Service Management incident	Service Mgmt. functionality.

5. Target CSS Architecture Input

5.1. This section provides input to the target CSS Architecture that is to be developed in the CSS Design Phase of the Ofgem Switching Programme stemming from the information gathered from the target E2E Switching Data Services Architecture. It is not the intent of this section to architect and design the CSS system. The information in this section is input related to the target E2E Switching Data Services Architecture to be used as guidelines and considerations in the architecture and design of the target CSS system in the context of the wider E2E Switching eco-system. This architectural information is provided in two forms of input – Logical Architecture and Functional Architecture.

CSS Logical Architecture Input

5.2. The logical architecture below shows the interactions of the CSS system component with other external systems. The external systems are shown as a single component with connectivity to CSS over a network connection. Text on the connectors indicates the data services associated with that interface.

5.3. In the new architecture, consumers still interact with the new supplier as their main point of contact. However, most of the switching functionality relating to a new supplier is centralised in CSS with the benefit of reducing the load on the supplier’s system. CSS will be designed as a modular, performant architecture that is scalable and secure.

Inbound Interfaces

INTERFACE NAME	DETAILS	
CommsHubDataLink	Purpose	Delivery of RDP data updates from the DCC Data Service relating to (Smart) electricity and gas meters connected to the same communications hub. Updates may be for individual items, subsets or a full refresh in exceptional circumstances. This interface will require the capability to support real-time and batch updates.
	Source(s)	- DCC Data Service
DADCAppointment	Purpose	Synchronisation of Data Aggregator and Data Collector agents (appointed by the energy supplier for a specified MPAN or MPANs) between the mastering and secondary (referencing) data services.
	Source(s)	- Meter Point Administration Service
MAPOwnership	Purpose	Delivery of daily electricity meter point information (including meter point location and supplier registration data) updates. Includes Synchronisation of Meter Asset Provider Ownership information between the mastering and secondary (referencing) data services and corresponding update of Supplier Arranged Appointments in CSS.
	Source(s)	- Meter Point Administration Service - Gas Central Data Service
MEMAppointment	Purpose	Specifies the Meter Operator and Meter Asset Manager agents appointed by the energy supplier for a specified MPAN or MPANs and associated

		contractual terms. Synchronisation of Supplier arranged Agent appointments between the mastering and secondary (referencing) data services
	Source(s)	- Meter Point Administration Service - Gas Central Data Service
MeteringPointSync	Purpose	Synchronisation of electricity Metering Points between the mastering and secondary (referencing) data services
	Source(s)	- Meter Point Administration Service
PremisesAddress	Purpose	Premises (Basic Land and Property Unit) updates from central address provider to CSS to enable determination of the Retail Energy Location. A feed of validated, standardised address data used for address triangulation by CSS and to provide assurance of address data quality
	Source(s)	- Premises Address Service
RegMgmtRequestSubmission	Purpose	Submission of a Registration from the Gaining supplier.
	Source(s)	- Supplier Data Service
SwitchIntervention	Purpose	Real-time delivery of an Objection (to a Switch Request) or Switch Request Withdrawal with related information – from the Losing Supplier.
	Destinations	- Supplier Data Service
SupplyMeterPointSync	Purpose	Synchronisation of gas Supplier Meter Points between the mastering and secondary (referencing) data services
	Source(s)	- Gas Central Data Service

Outbound Interfaces

INTERFACE NAME	DETAILS	
RegMgmtRequestNotification	Purpose	Notification of registration details to interested parties following receipt of a valid registration request or a subsequent change to its status.
	Destinations	- Data Aggregation Service - Data Collection Service - DCC Data Service - MAP Data Service - MEM Data Service - Shipper Data Service - Supplier Data Service
RegistrationSync	Purpose	Synchronisation of Registrations between the mastering and secondary (referencing) data services. i.e. consistency
	Destinations	- Gas Central Data Service - Meter Point Administration Service
ElectricityRegistration	Purpose	Delivery of daily electricity enquiry information data (including retail premises address to meter point data

		updates) to synchronise the mastering and secondary (referencing) data services.
	Destinations	- Electricity Central Online Enquiry Service
GasRegistration	Purpose	Delivery of daily gas enquiry information data (including retail premises address to meter point data updates) to synchronise the mastering and secondary (referencing) data services
	Destinations	- Gas Data Enquiry Service
RMPRegApptSync	Purpose	Synchronisation of RMPs, Registration and Appointment details
	Destination(s)	- DCC Data Service
RetailEnergyLocation	Purpose	Details of Retail Energy Locations passed from the mastering data service to the enquiry data services Address updates to ECOES and/or the Gas Data Enquiry Service.
	Destinations	- Electricity Central Online Enquiry Service - Gas Data Enquiry Service
AssetDeployment	Purpose	Details of changes to the significant asset that is deployed at each RMP
	Destinations	- MAP Data Service
InvitationToIntervene	Purpose	CSS sends an invitation to the Losing Supplier to Object or Annul the Switch Request.
	Destinations	- Losing Supplier Data Service

CSS Functional Architecture

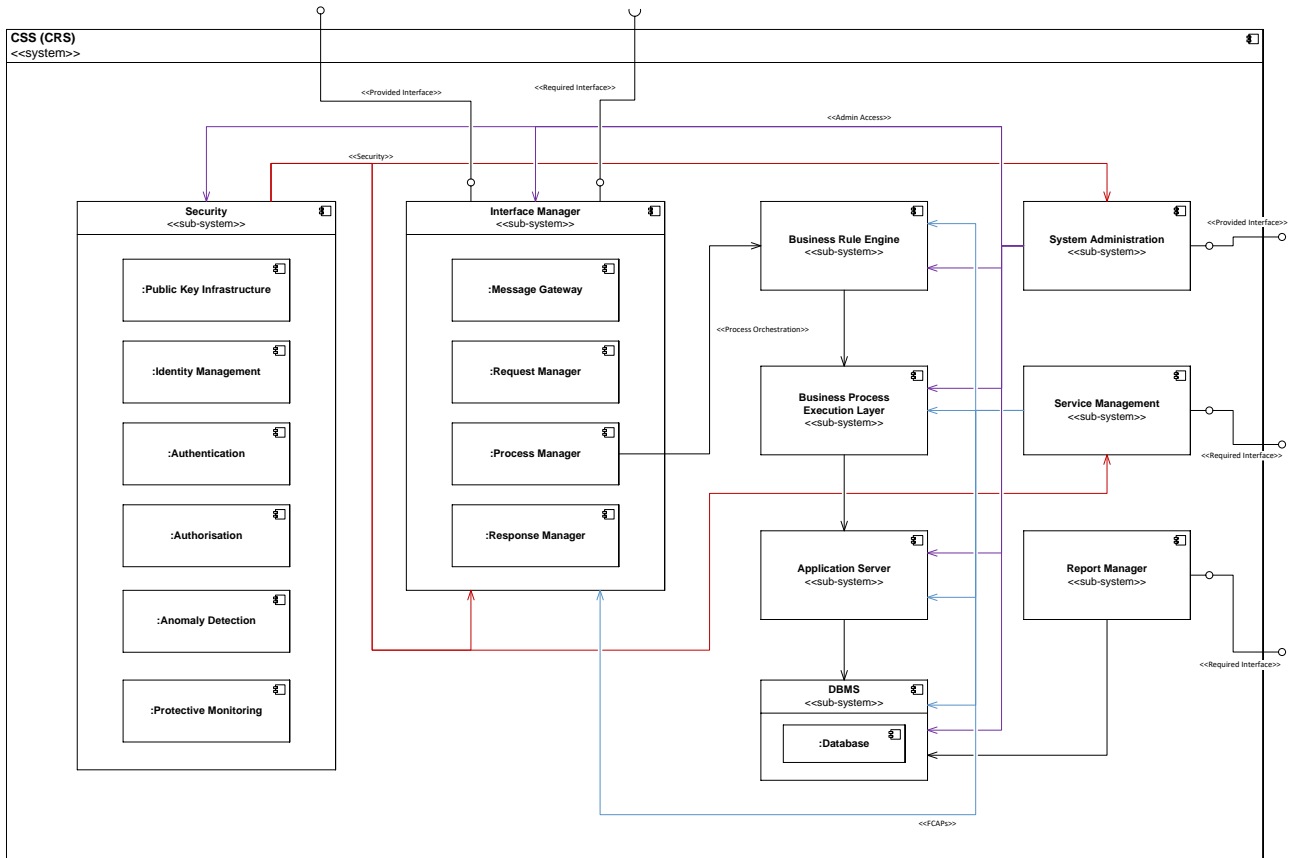


Figure 23 - CSS Functional Architecture

5.4. The key functionality for the Interface Manager is as follows:

Message Gateway	Receives incoming messages from external parties including losing suppliers, gaining suppliers, Meter Point Administration Service, Gas Central Data Service, Gas Data Enquiry Service, and ECOES etc. The Message gateway authenticates the messages, the source of the messages as well as their validity, conformity and complicity. The Message gateway checks message validation; if any of the message is not conformant, it is rejected. Message gateway is also responsible to establish the TLS end points with the external parties over the DCC Data network, and can also provide load balancing to meet scalability requirements.
Request Manager	Checks and authorises incoming messages to execute workflows or trigger switching. The Request Manager filters or transforms the messages so they can be processed as required by the Process Orchestration Management process. Request Management needs to check whether the incoming messages from a certain supplier is crossing the required threshold due to security reasons. It will also check whether any disallowed new Service requests are coming while an existing transaction is already in progress. After doing these additional checks, Request Manager then routes this message to CSS Process Orchestration Management.
Process Manager	Responsible for the execution of the switching business processes and their orchestration. After initiation by the Request Manager, requests invoke a new switching process in CSS with the required input data and its related transformation.
Response Manager	Responsible for any messages that need to be sent outside CSS. The Response Manager prepares the necessary transformations of the messages plus any wrappers needed to define which message needs to go to which external party.

	Response Manager can define messages depending on the business processes and requirements, then transforms the messages based on Security and Interfaces requirements.
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5.5. Other CSS functionality includes:

External Interfaces and Security	CSS provides external interfaces to external parties, which will be secured by the appropriate security controls set out in the CSS security requirements. These interfaces act as a bridging point between CSS and external systems.
Business Process Execution Layer and Business Rules Engine	Is used for modelling and orchestrating the behaviour of business processes using web-service interactions (e.g. the inter-system interfaces within the E2E solution). Business Rules are used to define what actions can be taken at any point in a process flow, and the constraints which apply to them.
Application Server and Database (DBMS)	The database(s) hold information including suppliers, premises, and meters, with processing facilitated by the application servers.

CSS and Premises Address Served Input

5.6. Analysis of failures within the existing arrangements identified poor quality data as a major factor in cross-fuel switching failures, delays and erroneous transfers (information taken from Ref.[11]). Approximately 80% of these failures are attributable to the quality of address data and/or misalignment between addresses and meter points. Extrapolation of this data across switching volumes for the 6 largest suppliers suggests that approximately 144,000 switches a year fail, are delayed, or lead to erroneous transfers due to this issue.

5.7. To meet programme objectives for improving the reliability of the switching process, data quality across the end-to-end solution will be addressed wherever feasible and consumer address data quality will be a key area of focus. A standard GB address list will be procured, against which gas and electricity meter point address information will be reconciled to ensure accuracy.

5.8. The Premises Address Service will have a single interface to CSS through which it will provide up-to-date, accurate address information to be mastered in the CSS. Updated address mastered in CSS will be propagated to the Gas and Electricity industry enquiry systems (Gas Data Enquiry Service and ECOES respectively) via the RetailEnergyLocation interface.

5.9. Additionally, as part of ongoing data quality assurance measures across the service, Parties and/or Agents responsible for maintaining meter point data may be enabled with the means to manually update inaccurate or missing data directly within the source address list.

5.10. This document will outline the desired logical architecture of the Address Service. The underlying detailed technical architecture of the solution will be defined as part of the CSS Detailed Design phase.

Logical Architecture

5.11. The Premises Address Service is defined in the Switching Design Repository and specifies the following interfaces for the system:

INTERFACE NAME	DIRECTIONALITY	DESTINATION SYSTEM
PremisesAddress	Outbound	CSS

5.12. This interface is shown in the next diagram:

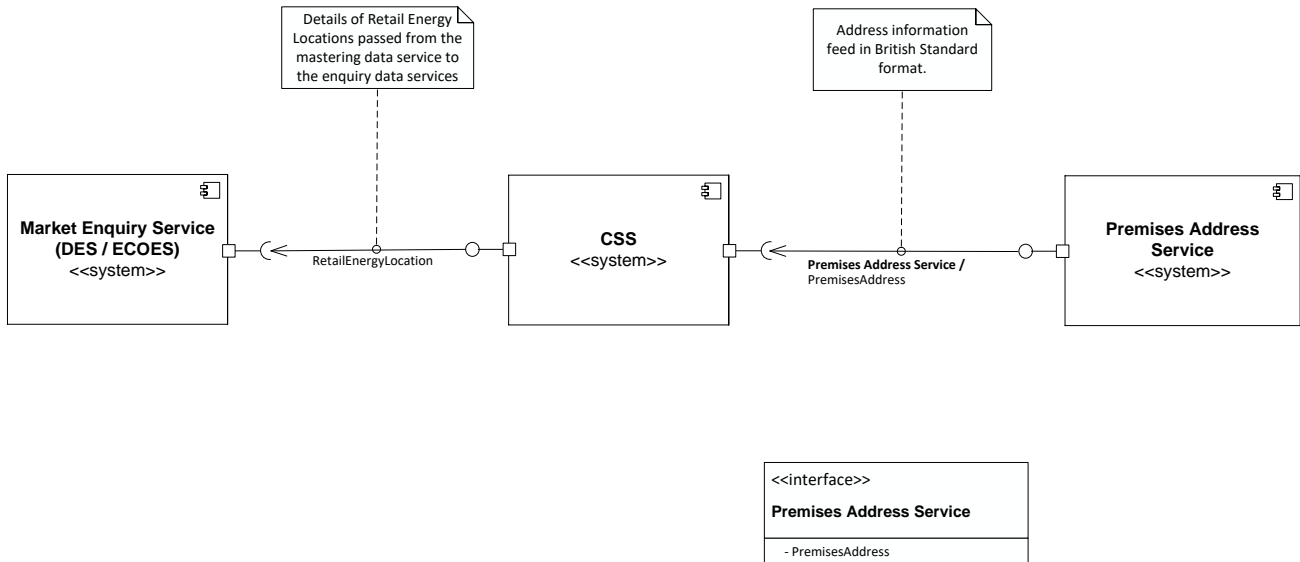


Figure 24 – Premises Address Service Interface

5.13. The interface architecture will be defined following the completion of RFI and RFP activity and the selection of the target product. The interface specification including the individual data elements and the required data format, is defined in the relevant Interface Specification in Ref.[02].

5.14. Information describing how the interfaces and message flows defined for the service will be orchestrated, including relevant time dependencies for subsequent processing and/or responses, is provided in Ref.[04] – DLS-4.1.6 E2E Operational Choreography.

Premises Address Service - Inbound Interfaces

5.15. There are no inbound interfaces to the Premises Address service.

Premises Address Service - Outbound Interfaces

INTERFACE NAME	DETAILS	
PremisesAddress	Purpose	Premises (Basic Land and Property Unit) updates from central address provider to CSS to enable determination of the Retail Energy Location. A feed of validated, standardised address data used for address triangulation by CSS and to provide assurance of address data quality
	Destination(s)	- CSS

Appendix 1 –Glossary

For a general glossary of Switching Programme terms, see the Ref.[17]. Terms used in this document and not found in the Defined Terms are listed below.

ACRONYM / TERM	DEFINITION
API	Application Program Interface
BPEL	Business Process Execution Layer
BLPU	Basic Land and Property Unit
BPMN	Business Process Modelling Notation
CoO, COO	Change of Occupancy
COS	Change of Supplier
CR	Change Request
CSS	Centralised Switching Service
DBMS	Database Management System
E2E	End-to-End
ES	Erroneous Switch
FIFO	First In First Out
GDPR	General Data Protection Regulation
HTTP	Hyper Text Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IM	Information Management
ISO	International Organization for Standardization
IT	Information Technology
ITIL	Information Technology Infrastructure Library
JSON	JavaScript Object Notation
LDM	Logical Data Model
MPxN	Generic term to include MPANs and MPRNs indicating any generic meter reference number.
MRA	Meter Reading Agents Not to be confused with Master Registration Agreement
N/A	Not Applicable
NFR	Non-Functional Requirements
NHHDA	Non Half Hourly Data Aggregator
QA	Quality Assurance
RDP	Registration Data Provider
RP0 to RP3	Reform Package 0 to 3, options for the Switching Programme
RPO	Recovery Point Objective
RTO	Recovery Time Objective

ACRONYM / TERM	DEFINITION
SIDs	Service Interface Data Specification
SOAP	Simple Object Access Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
TCS	The DLS-4.1.7 Technology & Communications Standards product (Ref.[05])
TCoS	Transitional Change of Supplier
TPIs	Third Party Intermediaries
UML	Unified Modelling Language
XML	eXtensible Markup Language

Appendix 2 – Use of Switching Design Repository

5.16. The attached slides provide an explanation of the content which can be found within the Switching Design Repository (ABACUS), where to find it and how to navigate it.



Use of Switching
Design Repository 0

Appendix 3 – Analysis of Changes Required for Agent Appointments

5.17. Ofgem requested DCC to consider the following changes as part of the RP2a RFI process.

For Metering Agents (impacts RP2a)

5.18. Remove the following requirements:

- for CSS to conduct initial validation on the DC and DA ID data items sent in a Switch Request (note that Supplier B would no longer be required to include the MOP, DC and DA in a Switch Request)
- for CSS to master MOP ID in the CSS
- for CSS to send notifications to the gaining MOP, DA and DC on switch confirmation and execution.

5.19. Retain a requirement for CSS to reference IDs for the incumbent MOP, MAP, DC and DA and to inform them on switch confirmation and execution that a switch is taking place.

Remove requirement to hold MCP ID from RP2a

5.20. This decision has been ratified by the Programme Board, and the detail is now based on a Policy Paper being developed by Ofgem. Although this paper is not yet complete, we have used it as the basis of the analysis.

Analysis

5.21. In the original blueprint, CSS was going to master the logistics agents known as Metering Equipment Managers (MEMs), but as part of the RP2a design changes, that is now ruled out and

this data mastering will remain in Meter Point Administration Service and the Gas Central Data Service. CSS will keep a copy of the Agent List (which is just a list of Agents against Supplier IDs), so there will need to be a synchronised mechanism for CSS when changes are implemented by suppliers and sent to the Gas Central Data Service and the Meter Point Administration Service. Note there are 20 different databases for the Meter Point Administration Service based on geographical location and one database for the Gas Central Data Service, but we will have unique MPxN references.

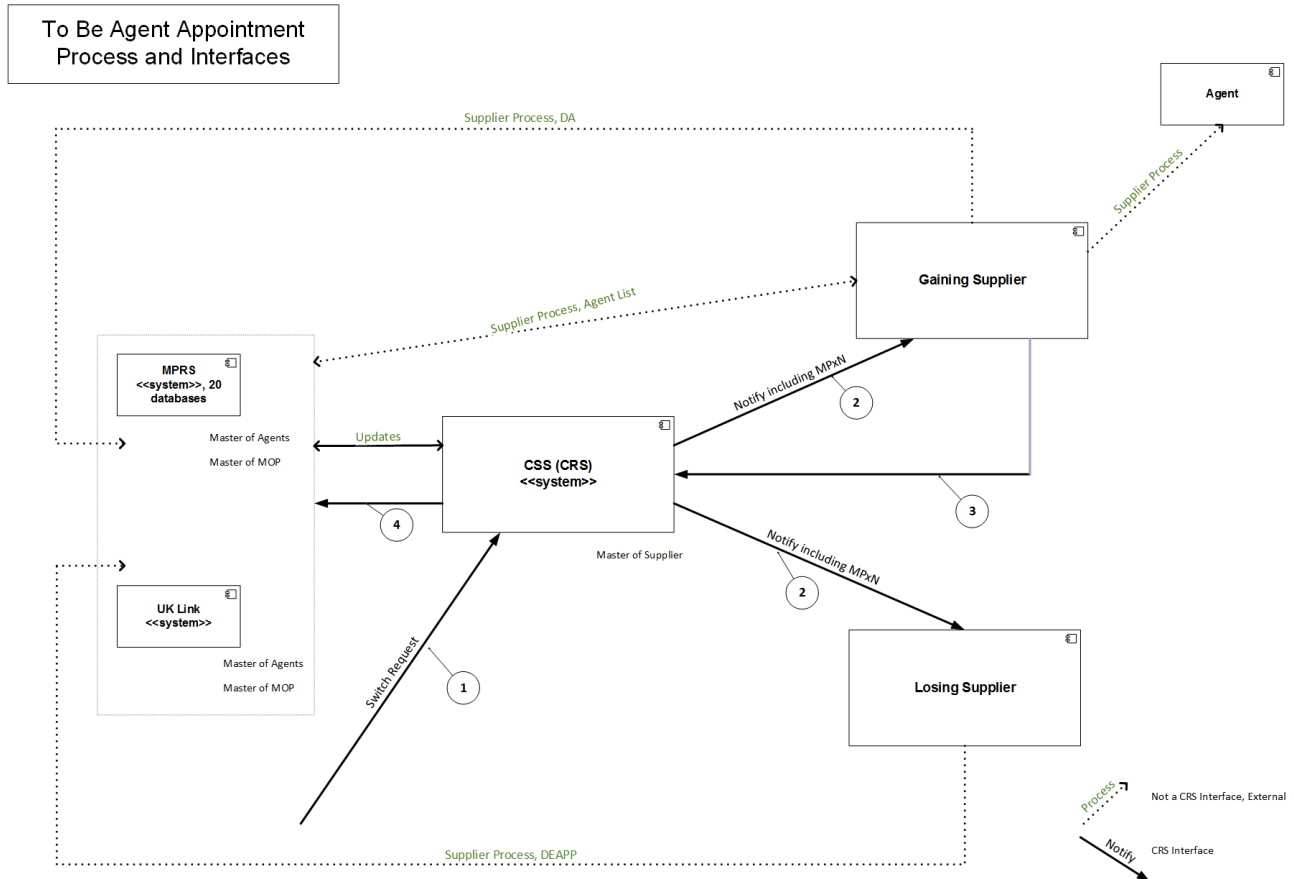


Figure 25: Process and Architecture for Agent Appointment Data

5.22. To ensure data integrity, the MEM should have an appointment aligned with the 'Agent List'. Design workstream industry subject matter experts were of the view that the existing industry process is 'good enough' and knowing the MEM reliably at the change of supplier doesn't matter at the time. By default, the old Agent used for a change at a Meter Point and will be carried over in the Meter Point Administration Service and the Gas Central Data Service. However, there is an ability to retrospectively change the Agent appointed at a change as DC and DA retrospective changes are accommodated by the settlements reconciliation process. As Smart Meters measure and record on current times, any failure by the MEM to manage metering availability at the time of switching may have an end-to-end impact. Mastering the MEM in CSS would have removed this potential for switching failure, which should be recognised as a continuing risk.

5.23. CSS will need to replicate the Appointments database structure from the Gas Central Data Service and the Meter Point Administration Service in CSS to hold the appropriate data and allow for retrospective changes. The two formats are different for gas and electricity respectively.

5.24. We need to design CSS so that updates to the Agent Lists are immediately synchronised into CSS. The risk is if there is a delay, and then data sent out to Losing Supplier will be incorrect.

5.25. There is a change for the Mastership Matrix. Only information mastered in CSS will be sent to Gaining and Losing suppliers; CSS also sends the existing Agent ID to the Losing Suppliers.

5.26. Notifications to Gaining Suppliers will not contain Supplier Agent information, and Suppliers will handle the agent's appointments themselves. Our activities are limited to:

- a CSS check if the planned switch is with a market participant
- if Yes, CSS sends Supplier ID and old Agent IDs

5.27. Currently the Gas Central Data Service and the Meter Point Administration Service have 21 separate feeds to DCC Data Service. In the new design, there will be 21 new interfaces to CSS, and one new interface from CSS to DCC Data Service. We do still have to set up interfaces to, and interactions with, each (gaining and losing) Energy Supplier, hence there is a small and planned impact on the Operational Choreography and Solution Architecture products.

Appendix 4 – RAID Analysis

5.28. The following sections provide RAID analysis which is relevant to the architecture of the E2E switching solution, rather than the Switching programme itself.

Risks

ID	DESCRIPTION	IMPACT (H / M / L)	PROBABILITY (H / M / L)	OWNER
R001	It may not be possible for System Owners to reuse existing Data Services without significant reengineering or modification.	H	M	System Owners
R002	The requirements and/or objectives of the Switching Programme may change.	H	M	Ofgem
R003	No formally defined volumetrics are available to support solution sizing (see A001).	M	M	Ofgem
R004	There is no formally agreed list of use cases. Late breaking use cases which materially impact the proposed solution could introduce delays to the programme and/or incur additional costs.	M	L	Ofgem
R005	Retained systems which use batch processing architectures and cannot be re-engineered, may not be capable of meeting the final programme objective for a 1 day switching process	L	H	System Owners
R006	Additional information and analysis may be required for impactors to perform an accurate assessment of <ul style="list-style-type: none"> - Costs - Timescales - Quality - Gaps - Technical risks 	L	H	Ofgem
R007	Data sent from UK Link and/or MPRS could be a duplicate or corrupted record, or doesn't match existing Supplier data. The mitigation is that we have to design a workaround, and ask for validation to check the data integrity and value.	M	L	CSS Detailed Design
R008	New and Updated registrations must be in MPRS and UK Link before the Suppliers refer to the Agent List for an appointment related to that registration. If the Gaining Supplier notification gets to the Energy Suppliers before the updated appointment is sent to, and updated in, MPRS or UK Link, there will be a switching exception.	M	L	CSS Detailed Design
R009	Suppliers may decide to send all requests immediately prior to gate closure. Ofgem may need to pursue a policy which discourages batching of requests and prefers a drip feed of requests throughout the day.	M	H	Ofgem

Assumptions

ID	DESCRIPTION	VALIDATED?
A001	Volumetrics for the To-Be solution will be derived and agreed with Ofgem and Market participants during CSS Detailed Design. In the absence of formal volumetrics current annual switching volumes should be assumed, with the peak month used for sizing purposes.	No
A002	All systems/application components of the To-Be solution are black boxes (their underlying technical architecture is beyond the scope of this document). However, it is assumed they can fulfil the requirements outlined in this document, subject to re-engineering where required.	Yes
A003	The management and implementation of any changes required to applications/systems outside of CSS is the responsibility of the respective System Owners.	Yes
A004	Systems which participate in the existing (1998) switching arrangements process can be modified to participate in the To-Be switching arrangements process, where feasible.	No
A005	Changes to the switching arrangements have the aim of introducing a guaranteed 5 working day maximum time for switches.	Yes
A006	Elements of the E2E switching processes for Gas and Electricity cannot be completely harmonised as part of the To-Be switching arrangements.	Yes
A007	Data will be mastered only once, and robust processes will be agreed for ensuring timeliness and quality of any replicated data.	No
A008	Capacity within the Gamma, DTN and IXN networks is sufficient to support the anticipated traffic volumes under the To-Be switching arrangements.	No
A009	Any changes to Switching Programme requirements which impact the technical solution will be subject to existing change management and impact assessment processes.	Yes
A010	CSS will adapt the existing PKI security mechanisms and standards developed for the smart-metering ecosystem (DCC Data Service). As such, participants in the To-Be switching arrangements with existing interfaces to DCC Data Service are likely to meet the security criteria necessary to interface with CSS	No
A011	A plan to address key data quality issues in source systems will be agreed prior to data migration and transition to the To-Be solution.	Yes
A012	Participant systems should can support future regulatory changes which may accelerate the switching process.	Yes
A013	A RESTful architectural style will be used for all interfaces with the CSS system	Yes
A014	Message schemas to support interface definition will be delivered as part of CSS detailed design activity.	Yes
A015	All systems will be required to operate on a single time source – a decision on whether this is UTC or Local time is required and will be agreed with Industry as part of CSS Detailed Design.	No

Issues

ID	DESCRIPTION	IMPACT
I001	Existing interfaces between systems in the switching process are all batch driven, but a rework of interface architecture will be required for all interfaces with CSS.	M
I002	The impact of moving to a XML interface architecture for the CSS to DCC Data Service interface may introduce significant changes into those systems which – given their profile - will require stringent testing to provide appropriate assurance prior to implementation.	H
I003	Final Volumetrics to support solution sizing are not yet defined.	M
I004	Formally agreed Use-Cases for the CSS are yet to be defined.	M
I005	References to content in Ref.[04] – DLS 4.1.6 Operational Choreography cannot be fully defined until that document is completed. These are marked as TBC at present and will be updated as soon as this information is available.	L

Dependencies

ID	DESCRIPTION
D001	Standards and guidelines regarding more technical aspects of the solution are provided in Ref.[05] – DLS 4.1.7 - Technical and Communications Standards document.

Constraints

ID	DESCRIPTION
C001	It is not possible to define the technical architecture of the system/application components within the E2E solution, only the requirements which the To-Be solution will place on them.

Appendix 5 – Response to Feedback

The attached document includes all comments and responses received to date of issue.



Consolidated
comments 27 10 201