Data Communications Company

D-4.2.4 CSS Delivery Plan

Ofgem Switching Programme

Delivery Workstream

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References

This document is associated with the following other documents:

Ref	Title	Source	Release Date	Version Number
[1]	Ofgem Outline Business Case (including Design Baseline 3)	Ofgem	12/02/2018	-
[2]	DCC Business Case (Transitional Phase) – Design Baseline 2 Update	DCC	08/02/2018	3.1.3
[3]	DCC Business Case (DBT Phase)	DCC	tba	tba
[4]	Blueprint Phase System Integration Strategy	Ofgem		
[5]	E-1.2 CSS Tender Pack	DCC	tba	tba
[6]	D-4.2.4 CSS Delivery Plan Product Description	Ofgem	22/06/2018	V2.0
[7]	D-4.2.6 CSS Data Migration Plan	DCC	22/06/2018	V2.0
[8]	Switching Design Repository (D-4.1.2 E2E Detailed Design Models)	Ofgem	26/10/2017	V2
[9]	D-4.1 E2E Switching Arrangements Design (comprising several sub-products)	Ofgem	tba	tba

Ref	Title	Source	Release Date	Version Number
[10]	D-4.2 CSS Design (comprising several sub-products)	DCC	tba	tba
[11]	D-4.1.10 E2E Security Design	Ofgem	tba	tba
[12]	D-5 Design Proving	DCC	tba	tba
[13]	CSS Interface Specifications	tba	tba	tba
[14]	DBT Phase Overall Programme Plan	Ofgem	tba	tba
[15]	Core Systems and Services Integration Approach	SI	tba	tba
[16]	Core Systems and Services Integration Plan	SI	tba	tba
[17]	D-4.3 Overall E2E Delivery Plan	Ofgem		
[18]	D-4.3.1 E2E Design and Build Plan	Ofgem	12/02/2018	2.0
[19]	D-4.3.2 E2E Integration Plan	Ofgem	12/02/2018	2.0
[20]	D-4.3.3 E2E Testing Plan	Ofgem	12/02/2018	2.0
[21]	D-4.3.4 E2E Transition Plan	Ofgem	12/02/2018	1.0
[22]	D-4.3.5 E2E Post-Implementation Plan	Ofgem	12/02/2018	2.0
[23]	D-4.3.6 E2E Data Migration Plan	Ofgem	12/02/2018	1.0
[24]	D-4.1.9 E2E Switching Arrangements Service Management Strategy	Ofgem	26/02/2018	3.0
[25]	removed			
[26]	Environment Plan	SI	tba	tba
[27]	D-8.2 Governance and Assurance Plan for DBT	Ofgem	tba	tba
[28]	Defect Management Plan	SI	tba	tba
[29]	SIT Plan	SI	tba	tba
[30]	UIT Plan	SI	tba	tba
[31]	D-4.1.4 E2E Switching Arrangements NFR	Ofgem	22/06/2018	V2.0
[32]	D-4.2.1 CSS User Requirements Specification	DCC	22/06/2018	V2.0
[33]	D-4.2.2 CSS Non-Functional Requirements	DCC	22/06/2018	V2.0
[34]	D-4.2.3 CSS Service Management Approach and Requirements	DCC	28/03/2018	V1.0
[35]	D-4.2.5 CSS Security Approach and Requirements	DCC	29 May 2018	0.10
[36]	D-1.1 Switching Architectural Principles	Ofgem		
[37]	D4.3.9 SI Requirements	DCC	tba	tba
[38]	D4.3.10 Core Systems Assurance Requirements	DCC	tba	tba

Ref	Title	Source	Release Date	Version Number
[39]	Switching Programme E2E Procurement and Commercial Strategy	DCC		

Table of Contents

1 Executive Summary

The physical implementation of the Central Switching Service (CSS) will take place during the Design, Build and Test (DBT) phase of the Ofgem Switching Programme, with some initial design work and early preparation and mobilisation activity in the Enactment phase of the programme. The physical implementation of CSS will be managed by DCC, with one or more Service Providers (SPs) under contract for the implementation of one of more CSS components as identified and specified within the End to End (E2E) and CSS Design work.

The implementation, or delivery, of the CSS takes place within a broader context of a range of changes to systems, services, processes and data across the Gas and Electricity markets impacting a wide range of market participants. To ensure that implementation across this wide range of stakeholders takes place consistently and coherently, and in a way which follows good practice and enables effective integration of the changes across the Industry, Ofgem have developed a range of Delivery strategies and approaches as documented in a series of products produced during the Blueprint and Detailed Level Specification (DLS) phases of the programme.

The implementation, or delivery, of the CSS components must take place in a way which is aligned to these wider, E2E delivery strategies and approaches. CSS delivery must also ensure that the requirement specifications for CSS are demonstrably satisfied within the physical designs undertaken by the CSS Provider(s) with an appropriate level of assurance provided to Ofgem, as programme Sponsors, and wider stakeholders.

CSS Delivery, whilst the responsibility of DCC, will take place within a broader governance and assurance regime defined by Ofgem. This includes some key programme roles, such as the Core Systems Integrator (SI) and Core Systems Assurance provider which will provide, respectively, integration and testing services and independent assurance across CSS and the changes to the existing central data systems and services impacted.

This CSS Delivery Plan defines a complete set of requirements to enable effective procurement and contract management of the CSS Provider(s) during the Enactment and DBT phases of the Switching Programme. These requirements are aligned to the E2E Delivery strategies, plans and approaches and also aligned to the DBT phase governance and assurance roles and responsibilities defined by Ofgem.

The physical design of the CSS has been left as open as possible at this stage to enable innovation from potential SPs. This means that the CSS delivery requirements in this document are solution agnostic and outcome based, and the full and final delivery approach for CSS will need to be finalised once the CSS physical solution and technology are understood. This finalisation of the CSS delivery approach, including detailed plans, is expected to take place prior to the start of DBT and will also need to take account of the final Core Systems and Service Integration Approach that will be developed by the SI.

2 Introduction

The CSS Delivery Plan defines the specific delivery requirements that the CSS Provider(s) responsible for implementation of each CSS component must satisfy as part of their commercial arrangements with DCC in its role as CSS Delivery Manager. These requirements will primarily be used to form the CSS Tender Pack(s) and, ultimately, the contractual requirements for the delivery aspects of the CSS component products and services as determined through the Procurement workstream.

The CSS Delivery Plan has been formed by extracting requirements identified as applicable to CSS from the E2E Switching Arrangements Delivery Plan products (4.3 and 4.3.1 to 4.3.5), but excluding data migration (D-4.3.6) as a separate CSS Data Migration Plan product is being developed to cover those aspects (D-4.2.6). These extracted E2E requirements have been modified where required to make them applicable to CSS, and any additional requirements added to ensure the CSS Delivery requirements comply with the Product Description and support the procurement activity.

CSS Delivery requirements have been documented in tabular format as part of each delivery section (sections 3 to 9) of this document. These tables of requirements record: the requirement itself and any traceability to the applicable source document; any associated deliverables; the timing and/or frequency associated with the requirement; and how the requirement will be demonstrated and accepted. As DCC is assumed to be the contracting authority for all CSS Providers, DCC will act as the ultimate authority for acceptance of all requirements and associated deliverables under the contract. The requirements tables therefore focus on who will provide assurance and review of the quality of performance and deliverable against each requirement to inform DCC's contractual acceptance decision.

The CSS Delivery Plan also provides an initial set of Risks, Issues, Assumptions and Dependencies relevant to CSS Delivery as a baseline for ongoing management and mitigation by DCC and the SPs.

The CSS Delivery Plan has been developed at an appropriate level of detail and prescription that reflect the CSS commercial and contractual requirements, but allows scope for the CSS Provider to innovate, tailor and adapt the delivery approach to their proposed solutions, whilst maintaining key touchpoints with other parties delivering their part of the E2E solution.

2.1 Purpose

The purpose of the CSS Delivery Plan is to specify the delivery requirements to be placed on each CSS Provider to:

- Provide proposed CSS delivery and implementation plans and approaches appropriate to their proposed solution (including defined quality gates, etc.).
- Provide evidence and assurance that their proposed solution can be implemented to achieve the requirements as specified in the CSS Detailed Design products (i.e. the other products in the D-4.2.x product set).
- Demonstrate how CSS implementation will be managed and maintained alongside the delivery and implementation activities of other parties and providers involved in

implementation of the E2E Switching Arrangements to ensure continued coherency, transparency and alignment.

- Report progress and provide evidence that CSS delivery and implementation progress is in line with the agreed plans, and that the required approaches are being followed to the required levels of quality.

- Provide any post-implementation (early life) support to address early life stability issues and ensure effective transition into steady state service management and operations aligned with other aspects of the E2E Switching Arrangements.

- Show how the CSS Provider(s) will work effectively with the DCC (as CSS Procurer and Manager), SI, Ofgem other Service Providers and Industry Parties in the context of the DBT phase of the programme.

- Satisfy any relevant KPIs/performance metrics deemed relevant for delivery/implementation aspects of the CSS.

2.2 Objectives

The objectives of the CSS Delivery Plan are:

- To ensure that a complete, consistent and sufficiently comprehensive set of CSS delivery requirements are captured and specified to support effective CSS procurement and contract management, whilst allowing the CSS Provider(s) sufficient scope to determine how they best meet these requirements.

- To ensure the CSS delivery requirements are fully aligned with, and traceable back to, the E2E delivery strategies and plans developed by Ofgem.

- To ensure that the CSS delivery requirements are coherent with related CSS requirements such as those for CSS Design, Security and Service Management.

2.3 Scope

The scope of the CSS Delivery Plan is to define the delivery requirements applicable to the implementation of each defined CSS component[1] within the context of the implementation of the wider E2E Switching Arrangements and specifically Ofgem's reform package RP2a (reliable next-day switching).

The CSS Delivery Plan takes its input primarily from the following products:

- E2E Switching Arrangements Delivery Products (D.4.3 series - all strategies and plans) [17, 18, 19, 20, 21, 22, 23]

- CSS Data Migration Plan (D-4.2.6) [7]

- CSS Sourcing Strategy

[1] These are currently defined as: the Registration Service; the Address Service; the Communications Networks; and the Service Operations components. The Customer Enquiry Service is currently out of scope of this document

- CSS Detailed Design products (D-4.2.x series) [10]
- Switching Programme: Outline Business Case (Design Baseline 3) [1]

The CSS Delivery Plan will provide input to the following products:

- CSS Tender Pack (E-1.2) [5]
- Transitional Regulations (art of the Retail Energy Code)
- SI Requirements (D-4.3.9) [37]

2.4 Assumptions and Dependencies

The assumptions and dependencies recorded below apply to all CSS Delivery requirements captured in this document. Assumptions and dependencies applicable to specific CSS Delivery areas are recorded in the relevant sections of the document.

Ref.:	Assumption/Dependency	Reference
1.	Data Migration Strategy, Approach and Plan for the CSS solution will be covered in the CSS Data Migration Plan product (D-4.2.6) but will not be finalised (by the SI) until the CSS physical solution is defined through procurement	D-4.2.6 CSS Data Migration Plan [7]
2.	The Customer Enquiry Service (CES) will be delivered separately and decoupled from CSS hence is not covered by this document	Outline Business Case[1]
3.	It is anticipated that the existing Data Transfer Network (DTN) and Information Exchange (IX) network services will be utilised to meet the Communications Network requirements for the new Switching Arrangements	Outline Business Case[1]
4.	Procurement of the CSS solution may result in one or multiple CSS Service Providers and this document will need to be flexible enough to support multiple procurement approaches	Switching Programme E2E Procurement and Commercial Strategy [39]
5.	The CSS and Core Systems Integrator (SI) role will have responsibilities for co-ordination and management of the CSS Providers (together with the existing central data system and service providers) in respect of Integration, Testing and other implementation activities (e.g. Data Migration). A separate SI Requirements product (D-4.3.9) will be developed to support procurement and management of the SI which must be consistent and aligned with this product	D-4.3.1 E2E Integration Plan [19] Ofgem Programme Board Decision on DBT roles and responsibilities 10th January 2018 D-8.2 DBT Governance and Assurance [27]
6.	The CSS physical solution architecture and technology (including physical interface specifications) will not be finalised until the final CSS SPs are selected later in the Enactment Phase. This product therefore does not assume a particular solution and covers Delivery in	None

Ref.:	Assumption/Dependency	Reference
	requirement and outcome terms. The CSS SPs will therefore be expected to define the specific Delivery strategies, approaches and plans specific to their proposed solution but aligned with the E2E Delivery Plans and CSS Delivery Plan	

3 CSS Delivery Approach

The overall CSS Delivery approach should be aligned with the E2E Delivery approach as embodied in the series of E2E Delivery products developed in the Detailed Level Specification (DLS) phase of the programme. This is defined in products: 4.3 (the overall Delivery Plan [17] and products 4.3.1 to 4.3.6 [18, 19, 20, 21, 22, 23] covering respectively Design & Build, Integration, Testing, Transition, Post-Implementation and Data Migration.

The overall E2E delivery approach recognises that the physical implementation of the new E2E Switching Arrangements will require the:

- design, build and test of the new CSS components;
- design, build and test of changes to existing central data systems and services and Market Participant systems and business processes;
- integration of these systems and services prior to their transition into the live environment; and
- migration of data into the new systems.

This is a large and complex change programme where delivery/implementation activity will take place simultaneously across existing Service Providers and other Market Participants as well as the new Service Providers. Some of these organisations will be responding to and complying with regulatory requirements and obligations (e.g. as laid down in Licences and Codes), either directly or indirectly, and some to commercial and contractual requirements.

Given this 'federated' delivery model, it is not possible or desirable to define a single detailed approach to delivery that may be applicable within a single homogenous organisation. Rather, the overall delivery approach recognises the need for all parties and providers involved in implementation to align to key quality and readiness gates and decision points built around a defined 'waterfall' set of implementation stages at the 'whole programme/E2E solution' level covering Design & Build, Integration and Testing and Transition (including Data Migration).

This Waterfall approach at whole programme level does not preclude individual organisations adopting appropriate delivery approaches (e.g. Agile) to best satisfy their requirements and/or obligations as long as they comply with the overall quality gates, readiness criteria, test phases and transition stages defined at the E2E level.

The overall approach to Delivery of the E2E Switching Arrangements also recognises the need for:

- effective co-ordination, management, governance and assurance across all of these parties and providers to ensure and assure their individual and collective progress, and to ensure alignment of physical designs; and
- ongoing Design Authority management and control of the design baseline throughout implementation across the multiple organisations involved.

In view of this, a comprehensive Governance and Assurance regime has been developed for the DBT phase of the Switching Programme defining clear roles and responsibilities for

the individual Market Participants and Service Providers involved, as well as clear roles and responsibilities for Ofgem (as Programme Sponsor and Design Authority), DCC (as CSS and SI Delivery Manager) and a range of dedicated central co-ordination and assurance functions including: the CSS and Core Systems Integrator (SI); Programme Co-ordinator; Licensed Party Assurance; and Core Systems Assurance as covered in Section 7 of the Outline Business Case [1].

Furthermore, the programme Design workstream has taken the decision to avoid defining a particular solution architecture that pre-supposes any solution or technology options for the components - or the interfaces between them - to enable innovative solutions to be proposed by the market. Given this, it is not possible for a specific, final detailed delivery approach to be developed for the CSS prior to procurement of the CSS Service Provider and Address Service Provider.

The delivery approach for CSS is therefore defined in the form of clear requirements, deliverables and outcomes that can initially be included in the tender packs for procurement of the Service Providers. The CSS Provider(s) working with DCC as CSS Delivery Manager will then be expected to detail their intended delivery approach aligned to their solution and demonstrate how this meets the requirements laid down in this product.

Once the final CSS Provider(s) are selected, some or all of their defined delivery approach may be used, together with the initial ITT specification, to form the final contractual specification. At this time, this CSS Delivery Plan product, plus the CSS Data Migration Plan and the E2E Delivery Strategies and Plans will also need to be updated to reflect the final CSS solution and its detailed delivery approach (as well as the Core SI's final detailed integration and testing approach). This process is reflected in Figure 1 below.

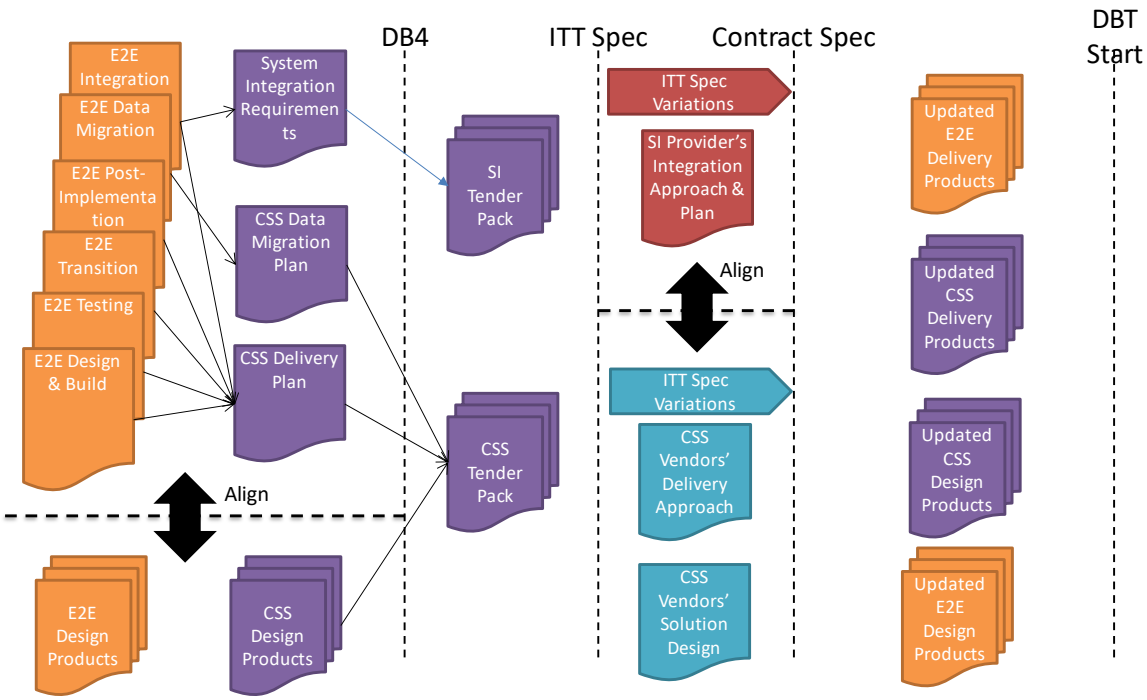

Figure 1 – Evolution of the CSS Delivery Plan in The Context of the Enactment Phase

3.1 Alignment with DBT Phase Governance and Assurance

Product D-8.2 [27] and the Outline Business Case [1], will define the detailed DBT Governance and Assurance roles and responsibilities, including terms of reference for Boards, Committees, Steering Groups and Working Groups. These are also covered in the E2E Integration Plan [19] from the perspective of undertaking effective Integration and Testing (see sections 3 to 6 of this product).

Figure 2 below, copied from the Outline Business Case [1] summarises the main roles and responsibilities proposed for the DBT phase of the programme.

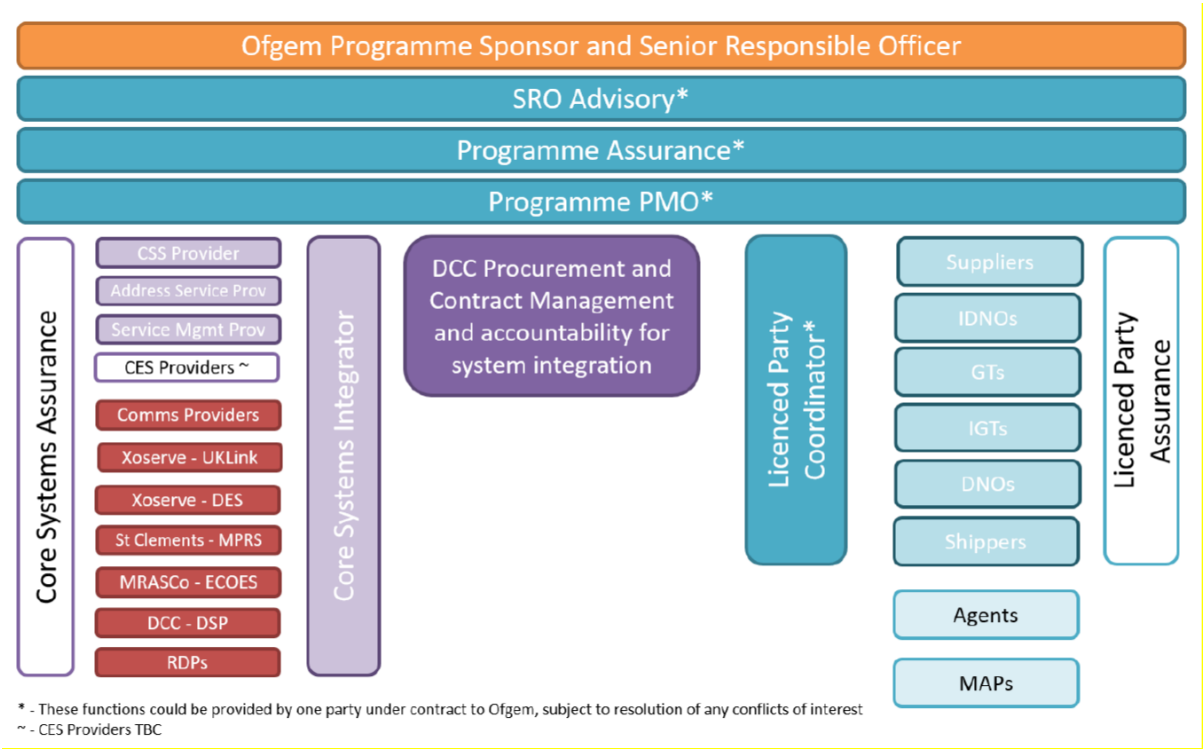

Figure 2 – DBT Phase Roles and Responsibilities (copied from DB3 Outline Business Case)

Of particular relevance to CSS delivery are the following programme roles:

> CSS Procurer and Manager. DCC will procure and manage the physical design and implementation of the new CSS components. DCC will be expected to reflect the delivery requirements in this CSS Delivery Plan into the CSS Tender Packs to support procurement and then to reflect these in the final CSS contracts with each SP. DCC will then manage and oversee the delivery activities of each CSS SP and ensure these meet the requirements defined in the contract so that, ultimately, the DCC can satisfy its Licence Obligations in respect of CSS delivery (DBT).
>
> SI Procurer and Manager. It is expected that DCC will fulfil the role of SI Delivery Manager and will establish processes (including resources) to manage SI activities and provide an integration service (aspects of which may be insourced or procured as part of an outsourced SI contract).

Core Systems Integrator (SI) Provider. It is expected that DCC in its role as SI Delivery Manager will appoint, and manage the activities of, a specialist SI service provider. The SI Provider will:

- integrate and test the CSS components so that they demonstrably meet the CSS User Requirements Specification.
- integrate and test the CSS components with the existing service providers.
- provide testing services to Licensed Parties and their agents to enable them to test their interfaces with the CSS and existing central data systems and services.
- manage CSS Data Migration activities, Transition to live cut-over and provide post-implementation (post go-live) support until the stage gate exit criteria are met.

The CSS Provider(s) will be expected to align their delivery approaches and plans to the SI-developed Core Systems and Services Integration Approach and Plan that are defined in the E2E Integration Plan.

Core Systems Assurance Provider(s). It is expected that DCC will procure independent assurance services from one or more providers to provide assurance to Ofgem that the implementation of the new CSS components and changes to existing central data systems and services, is proceeding to plan and in accordance with requirements and specifications. This assurance service will provide confidence to the Switching Programme Senior Responsible Owner (SRO) that the programme will achieve the objectives, outcomes and benefits to time and defined quality levels. The CSS Component Provider(s) will be expected to co-operate fully with the Core Systems Assurance Provider role.

These roles, and others, are expanded on in later sections of this document. The defined requirements for CSS Delivery management, governance, reporting and assurance, defined in Section 4, are fully aligned to the DBT Governance and Assurance product D-8.2 [27].

3.2 Alignment with E2E Design & Build Plan

The E2E Design and Build Plan [18], which should be read in conjunction with this document, recognises that the design and build of new CSS components, as well as the changes to existing legacy systems and services across the existing service providers and Market Participants, will follow multiple approaches and methodologies utilised by the responsible organisations.

In terms of CSS Design and Build, the physical CSS solution architecture and technology is not known or defined at this stage in order to enable innovation from potential CSS SP bidders. Given this, it is not possible or appropriate to define in detail ‘how’ the CSS Provider(s) should design and build the modules and components that form their intended solution.

It is recognised that a range of methodologies, approaches, tools and techniques (e.g. based around Agile or Waterfall) may be used as appropriate by the CSS Provider(s) to

implement their chosen solution. However, the E2E Design and Build Plan does define some key Principles and Quality Gates and requires assurance evidence that Design and Build is proceeding to plan. This CSS Delivery Plan therefore ensures these Principles, Quality Gates and Assurance requirements are embodied in the CSS requirements.

Irrespective of the Design and Build methodology or approach employed by the CSS Provider(s), a key requirement will be for the CSS Provider to show how, at this early stage within the DBT phase, they are helping de-risk the wider implementation across all other SPs and Market Participants as part of a 'collaborative effort'; e.g. by providing visibility of physical design and build information or 'early drops' to enable de-risking; especially across the external (to SP) interfaces.

The applicable requirements from the E2E Design and Build Plan have therefore been extracted and included within Section 6 of this document (CSS Design and Build), together with identification of any additional CSS specific requirements. Traceability of requirements back to the E2E Design and Build Plan is included where applicable.

3.3 Alignment with E2E Transition Plan

The E2E Transition Plan [21], which should be read in conjunction with this document, defines 3 main stages (Stages 1 to 3) for the transition of the new E2E Switching Arrangements into the live (production) environments across all impacted parties and providers. These culminate in a single, market-wide 'Go-Live' event at the end of Stage 3.

The E2E Transition Plan also defines a pre-Transition stage (Stage 0) for any preparation activities (mainly associated with legacy data cleansing and transformation) prior to the main transition stages. There is also a post-implementation stage after Go-Live to provide enhanced early life support and to ensure the managed handover to steady state service management, operations and governance.

In terms of CSS Delivery, the CSS transition approach and plan must align with the defined E2E Transition Plan In respect of CSS delivery. The applicable requirements from the E2E Transition Plan have therefore been extracted and included within Section 8.1 of this document (CSS Transition to Live), together with identification of any additional CSS specific requirements. Traceability of requirements back to the E2E Transition Plan is included where applicable.

3.4 Alignment with E2E Testing Plan

The E2E Testing Plan [20], which should be read in conjunction with this document, defines the minimum set of Test Phases and some of the constituent Test Stages that must be carried out to test individual and integrated elements of the new E2E Switching Arrangements.

The CSS Provider(s) will be expected to develop a more detailed Testing Strategy, Approach and Plan for the specific physical solution they are implementing for the CSS solution components they are responsible for. As a minimum, this must satisfy the applicable Test Phases and Test Stages defined in the E2E Testing Plan.

The CSS Provider(s) will also be expected to define and provide any Test Environments, Test Data and Test Tools for the testing activities they are responsible for in line with the E2E Testing Plan.

The applicable requirements from the E2E Testing Plan have therefore been extracted and included within Sections 7.2 of this document (CSS Testing), together with identification of any additional CSS specific requirements. Traceability of requirements back to the E2E Testing Plan is included where applicable.

3.5 Alignment with E2E Integration Plan

The E2E Integration Plan [19], which should be read in conjunction with this document, defines the overall Integration Strategy, Approach and Roles and Responsibilities. As above, this document recognises that the physical solution and technology for the implementation of CSS and its interfaces has not yet been determined. In view of this, the SI is required to produce an updated, and more detailed Core Systems and Service Integration Approach and associated detailed plan to reflect the final CSS solution architecture and technology. This in turn will be used to update the Switching Programme level (E2E) Integration Strategy and E2E Integration Plan documents produced in the Blueprint and DLS phases respectively.

This will necessitate an iterative approach through the Procurement process whereby the Core Systems and Services Integration Approach and Plan will need to inform the development of the detailed CSS delivery approach and plan developed by the CSS Provider(s) and vice versa.

Ultimately, the CSS Provider(s) are expected to develop and agree a final CSS delivery approach and plan that meets the requirements in this document (as reflected in the CSS Tender Pack and final contract), but which also align with the Core Systems and Services Integration Approach and Plan developed by the SI.

The applicable requirements from the E2E Integration Plan have therefore been extracted and included within Sections 7.1 of this document (CSS Integration), together with identification of any additional CSS specific requirements. Traceability of requirements back to the E2E Integration Plan is included where applicable.

3.6 Alignment with E2E Post-Implementation Plan

The End to End Post-Implementation Plan [22], which should be read in conjunction with this document, defines guidance and direction to all Industry Parties, their existing providers, DCC and its Service Providers (SPs), to plan and then execute their Post-Implementation activities to ensure that:

- the E2E Switching Arrangements achieve the required performance and stability as early as possible after go-live; and
- transition to steady state Service Management, Operations and Governance is effective and seamless.

Post-Implementation is a defined period of enhanced early life support to ensure that the performance and benefits of the new Switching Arrangements are achieved as soon as possible by stabilising the arrangements post go-live and ensuring a managed hand over from the Design, Build and Test (DBT) phase to steady state service management, service operations and governance.

In respect of CSS delivery, the post-implementation requirements laid down in the E2E Post-Implementation Plan will apply to CSS Providers involved. The applicable requirements from the E2E Post-Implementation Plan have therefore been extracted and

included within Section 8.2 of this document (CSS Post-Implementation Support), together with identification of any additional CSS specific requirements. Traceability of requirements back to the E2E Post-Implementation Plan is included where applicable.

3.7 Alignment with E2E and CSS Designs

The E2E Switching Arrangements design architecture and specifications are laid down in a series of design artefacts developed in the DLS phase of the programme as captured in the design repository (Abacus) and a range of other design artefacts [9]. The associated CSS Design specifications aligned to these and captured in a separate set of products[10]

In respect of CSS Delivery, the CSS Provider(s) will be required to demonstrate traceability back to the CSS requirement specifications (and ultimately to the E2E requirement specifications) via the population and maintenance of a Requirements Traceability Matrix. Evidence should be provided through the physical design, build, integration and testing that the requirements specified have been incorporated and satisfied using the defined acceptance criteria applicable to each requirement.

Changes in both the logical design specifications (as embodied in the E2E and CSS requirements specifications) and the physical designs (as defined and managed by the CSS Providers) are likely to occur throughout the DBT phase. These changes may be requirement-driven (e.g. to correct or clarify an aspect of the design or to reflect new User requirements) or defect driven (e.g. to address a defect discovered in testing).

In respect of CSS Delivery, the CSS Provider will be required to log and record all issues and defects encountered during the DBT phase and to manage change and configurations in line with wider Change and Configuration Management processes defined by the SI. The DCC, as SI Delivery Manager will maintain a design baseline for the integration of the CSS components and will resolve any issues/disputes that arise between CSS providers in respect of this baseline.

These requirements are reflected in Section 9 of this document.

3.8 Alignment with CSS and E2E Data Migration Plans

The E2E Data Migration Plan [23], which should be read in conjunction with this document, defines the overall requirements and approach for Data Migration aligned to the Transition approach and stages as defined in the E2E Transition Plan.

A separate CSS Data Migration Plan product is being produced to provide more detailed data migration requirements from the existing core systems to the CSS [7]. CSS Data Migration is therefore not covered in any further detail in this product.

3.9 Alignment with E2E and CSS Service Management Strategy, Approach and Requirements

The E2E Service Management Strategy [24] together with the CSS Service Management Approach and Requirements [34], which should be read in conjunction with this document, define the strategy, approach and requirements for service management and operations for the new E2E Switching Arrangements and for CSS within this.

Although not the subject of this CSS Delivery Plan, each CSS Provider will be expected to provide service operation and management functions for the CSS component services for

which they are responsible post Go-Live and to meet defined requirements, such as a Service Desk, 2nd and 3rd line support and a Service Operations team.

In the context of CSS delivery, the CSS Provider will however be required to design, build and test the service management and operations components of their solution as part of the DBT phase, and then to transition this into live operation (including transfer of any applicable information (e.g. outstanding defects), knowledge (e.g. work-arounds), data (e.g. design datum pack), tools, environments, etc. from the DBT phase). This is termed 'Operational Transition' in the context of this CSS Delivery Plan.

Operational Testing requirements are included in Section 7.2 and Operational Transition requirements are included in Section 8.1 and 8.2 of this document.

3.10 Alignment with E2E and CSS Security Requirements

The E2E and CSS Security Requirements [11, 35] will place requirements on the CSS Providers regarding compliance with security requirements. The CSS Delivery Plan will be aligned with any delivery requirements that are set out in the security documents. It is anticipated that this will include obligations on the CSS Providers to conduct security and penetration testing; to ensure anomaly detection requirements are incorporated into the design; to assess security threats at specified intervals; to separate test and production environments; and to demonstrate compliance with General Data Protection Regulation (GDPR) requirements.

The provision of data from the CSS to Smart Metering will need to comply with the security provisions that are set out in the Smart Energy Code and the CSS will need to become a DCCKI and IKI user prior to conducting integration testing with the DCC.

3.11 CSS Delivery Approach Requirements

The following table of requirements defines the minimum set of requirements that the CSS Provider will be required to satisfy in respect of provision of CSS Delivery Approach. This includes any associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will define, document and justify its overall Delivery Approach in respect of the CSS Component(s) it has responsibility for	CSS Overall Delivery Approach document in accordance with DID Del1	Initial draft with Tender response, updated version to be baselined by start of DBT phase and managed under change control thereafter	Review and assurance by DCC and the SI to ensure alignment with DID Del1.
2 (New)	The CSS Provider will demonstrate that its proposed delivery approach satisfies the requirements in this CSS Delivery Plan and aligns with: DBT Governance and	Demonstration of alignment with these areas included in DID Del1	As for DID Del1	Review and assurance by DCC, and the SI to ensure alignment with DID Del1 and this CSS Delivery Plan

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	Assurance arrangements; the E2E Delivery Plans; the Core Systems and Service Integration Approach, the CSS Data Migration Plan; the E2E and CSS Design specifications; the E2E and CSS Service Management approaches and requirements and the E2E and CSS Security requirements			
3 (New)	The CSS Provider will demonstrate that its proposed delivery approach recognises and mitigates the Risks, Assumptions and Dependencies recorded in this CSS Delivery Plan and in the CSS Provider's own RAID Log (DID PM5)	Part of DID Del1	As for DID Del1	Review and assurance by DCC and the SI to compliance with DID Del1.

4 CSS Delivery Programme Management

As defined in Section 3 above, the physical implementation of the new E2E Switching Arrangements across all affected parties and providers represents a complex, multi-party change programme. This is fully recognised and Ofgem, as programme Sponsor, is applying best practice Project and Programme Management principles and approaches to the management of the programme.

This is embodied into the DBT Phase Governance and Assurance approach and associated roles and responsibilities as defined in Section 3.1 above. It is the expectation that this good practice Project and Programme Management is undertaken at all levels in the programme throughout the DBT Phase by each party and provider involved.

Given this, DCC, as CSS Delivery Manager (in addition to its other roles), will adopt effective, best practice Project and Programme Management in line with Ofgem requirements and in line with internal DCC Portfolio Office policies, processes and tools, tailored to their specific scope, roles and responsibilities within delivery. DCC's approach to Programme Management will build on that utilised during the Blueprint, DLS and Enactment (Transitional) stages, and will need to interface effectively with the overall Programme Management regime adopted by Ofgem.

Likewise, the CSS Provider(s) are required to adopt best practice Project and Programme Management principles suitably tailored to the needs of their roles and responsibilities within the DBT Phase of the Switching Programme. Where required, this will need to align and interface with the DCC Project and Programme Management regime for the DBT Phase.

The CSS Provider's Programme Management approach will include all the areas defined in this Section 4 and also cover Programme Planning and Controls in Section 5. The CSS Provider's Programme Management approach should align to best practice principles and practices; e.g. as laid down by the APM, PMI, Prince 2, MSP, etc.

The CSS Provider's Programme Management approach should support DCC in discharging its Programme Management responsibilities, including progress reporting to Ofgem and Price Control. The CSS Provider's Programme Management approach should interface seamlessly with the DCC in terms of information, tools, processes and governance.

4.1 CSS Delivery Programme Structure

The CSS Provider(s) will sit within a wider CSS Delivery and SI Programme Structure to be developed by DCC for the DBT Phase. This DCC programme structure will define the work-streams, projects and capabilities that are required by DCC to effectively and efficiently discharge its roles in respect of CSS delivery and CSS and Core Systems Integration in line with the relevant Licence Obligations on DCC.

Figure 3 below captures an illustrative Delivery Programme Structure covering both the CSS and SI Procurer and Manager roles to be undertaken by the DCC (the DCC role in respect of Core Systems Assurance will be separated from these roles given the need for demonstrable independence).

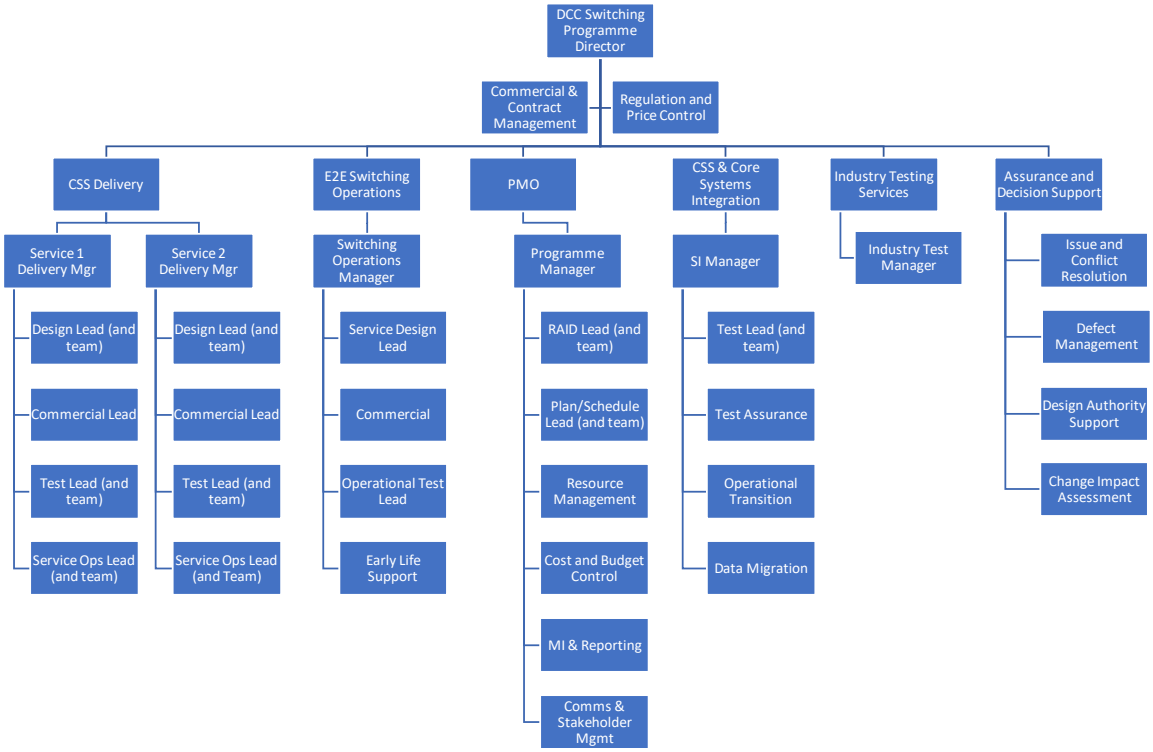

Figure 3 – Illustrative high level DCC Programme Structure covering CSS Delivery and SI Roles

The key features/principles of this programme structure are described below:

Each Service (i.e. CSS component services, the E2E Service Operations service and the SI service) will have an appointed DCC Delivery Manager with an appropriate supporting team;

The DCC Delivery Manager for each service will be paired with a Commercial Lead within DCC to support commercial and contract management of the associated Service Provider;

Each DCC Delivery Manager will be responsible for ensuring and assuring activities are: in line with requirements; progress is on track; deliverables and outputs are of the required quality; evidence supports defined quality and readiness gates, decision points; etc.;

The key appointments in this structure will be in place by Dec 2018 to enable relationships and ways of working to be built, and to enable the team to inform the final contract details;

Joint working approaches with the Service Providers will be maximised; e.g. co-located working for part of working week; shared information and electronic working environments, etc.

The final programme structure relevant to CSS Delivery will be developed and refined during Procurement and baselined prior to the start of DBT by DCC. It will be aligned to the CSS Provider(s) detailed delivery approaches, Core Systems and Services Integration

Approach and Plan, and the wider programme governance and assurance regime developed by Ofgem in conjunction with the Programme Co-ordinator provider.

4.2 CSS Delivery Roles & Responsibilities

The full and authoritative description of all delivery (DBT) roles and responsibilities is provided in product D-8.2 and this should be referred to. For completeness, the main roles and responsibilities relevant to CSS Delivery are summarised here

Role of Ofgem. Ofgem has three principal roles: Programme Sponsor; overall (E2E) Programme Management and Leadership; and E2E Design Authority.

Role of DCC (as CSS Procurer and Manager). The CSS Procurer and Manager will have overall responsibility for delivery of the CSS, including procurement and contract management of the CSS Provider(s).

Role of the CSS Providers. The CSS Provider(s) will design and deliver the new CSS systems and services in accordance with the requirements of the CSS Design and Delivery documents and the E2E Delivery Plans, and these systems and services must be compliant with the E2E logical design baseline.

Role of DCC (as SI Procurer and Manager). This role is specific to Integration and Testing and is described in greater detail in Section 7.

Role of the Core Systems Integrator (SI). This role is specific to Integration and Testing and is described further in Section 7.

Role of E2E System Co-ordination and Programme Assurance (Programme Co-ordinator). The Programme Co-ordinator role is broken down into: Provision of a PMO for the E2E programme; providing support and advice to the SRO and overall governance structure; providing Programme Assurance; and co-ordination of the activities of the Licensed Industry Parties (see Figure 2).

Role of Core Systems Assurance. The Core Systems Assurance role is responsible for providing independent assurance of the CSS Delivery Manager; CSS Providers; existing central data system and service providers; SI Delivery Manager and SI.

Role of the Existing Central Data Systems and Service Providers. The role of the existing central data system and service providers is to implement the required changes to their existing systems and services in line with the final CSS and E2E designs, and in accordance with the E2E Delivery Plans and the Core Systems and Services Integration Approach and Plan.

4.3 CSS Delivery Governance and Assurance

The overall Governance and Assurance regime for the DBT phase of the programme is discussed in Section 3.1 above. This section of the document focuses specifically on the Governance and Assurance requirements applicable to CSS Delivery, and the specific requirements relating to the CSS Providers.

4.3.1 CSS Delivery Governance

The CSS Procurer and Manager will be accountable to Ofgem via licence obligations for the design, build and testing of each CSS component and will manage the CSS

Provider(s) via contracts that will be established between the CSS Delivery Manager and CSS Provider(s) during the Enactment phase of the programme. These contracts will include Service Level Agreements (SLA) and other contractual instruments (including cross-CSS Provider liabilities) that will enable achievement of the programme Go Live date.

As per Section 4.1, the DCC in its CSS Procurer and Manager role will establish a single accountable CSS Service Delivery manager for each CSS Component services and/or contracts; such that there is a single point of accountability aligned to each CSS Provider.

DCC will establish an appropriate governance structure to accept the CSS Provider design and testing artefacts, tests results, resolve testing defects and to issue milestone completion certificates. It is anticipated that two industry representatives will be invited to attend the relevant governance boards.

The CSS Provider will propose appropriate governance arrangements for their delivery activities and responsibilities aligned to the DCC programme structure. This will be documented in the Programme Management approach document (see Appendix B, DID PM1).

This shall include an outline programme team and organisational breakdown structure with key appointments, responsibilities, levels of delegation and RACI chart aligned to responsibilities for the key activities and outputs/deliverables (in line with the Work Breakdown Structure (WBS) and Product Breakdown Structure (PBS) in Section 5 below).

The CSS Provider will define any key boards, meetings, committees, working groups, steering groups, etc. it puts in place to support engagement and decision making. This shall include membership and Terms of Reference for each, together with expected involvement of external stakeholders (e.g. DCC, Ofgem, SI and others).

The CSS Provider will develop a Stakeholder Management and Communications Plan as part of its Programme Management approach.

4.3.2 CSS Delivery Assurance

The ISO 9000 series of international quality standards defines Quality Assurance (QA) as: "*providing confidence that requirements will be fulfilled*". It is about prevention of defects so is about ensuring that the processes, people, etc. that produce the products are fit for purpose. The focus of this assurance should be on 'Prevention' or 'Proactive' approaches.

Likewise, the Managing Successful Programmes (MSP) guidance defines Assurance as: "*the systematic set of actions to provide confidence to the SRO and stakeholders that the programme remains under control and on track to deliver and that it remains aligned to the organisation's strategic objectives*".

Both of these definitions for assurance are relevant as the Switching Programme, and hence CSS delivery, is both a complex change programme and is delivering products that must be fit for purpose (i.e. meet user and stakeholder requirements).

Assurance of CSS Delivery will be undertaken by the CSS Providers themselves (self-assurance) and by a range of external bodies/roles (including the SI, DCC and the Core Systems Assurance provider)

4.3.3 CSS Provider Assurance (Self-Assurance)

The CSS Providers will plan for and undertake assurance of the full scope of their activities and outputs within the contract through the design of an appropriate Assurance regime. It is expected that this will be in line with the CSS Providers' extant Quality Assurance systems and processes (e.g. ISO 9001 or similar) and will be documented in an appropriate QA plan to be developed and delivered by the CSS Provider soon after contract award (with a draft provided as part of the tender process)

The Assurance regime and plan adopted by the CSS Provider is expected to follow best practice guidance recognising the unique characteristics and delivery environment within which CSS Delivery is operating. The CSS Assurance regime should cover:

- Preventative Techniques: To prevent 'defects' entering into Live Operation
- Corrective Techniques: To support resolution of defects/issues that are identified during the DBT Phase
- Detective Techniques: To determine whether: the Switching Programme is 'on track' to meet the Go Live date; the CSS Provider is compliant with its contractual requirements; and to monitor risks and the effectiveness of risk mitigation activities

The CSS Providers' QA Plan shall include a description of how it will support independent and external assurance activities by DCC, the SI and the Core Systems Assurance Provider as defined below.

Further guidance on these areas of assurance is provided below.

Preventative Assurance

A large number of diverse parties are involved in the delivery of the new E2E Switching Arrangements, all of which must develop their systems against a common baseline to ensure that these systems can interact in a coherent and consistent manner.

The E2E Logical Design Baseline ('baseline') will be maintained throughout the DBT and Operational Phases of the programme to provide a common basis against which all components of the E2E Switching Arrangements are developed and operated (including by CSS Providers).

Preventative (pre-integration) assurance will be required to show that that the CSS systems/services are compliant with the design baseline prior to integration, including that the requirements set out in the E2E Design & Build Plan, E2E Testing Plan and CSS Delivery Plan have been met. This includes confirmation that the systems/services have successfully completed Pre-Integration Testing and that gate entry criteria for the introduction of CSS components into Integration Testing have been achieved.

Corrective Assurance

Issues will arise during the design and development of CSS. Clarification of ambiguities in the baseline documents may be required and inconsistencies, errors and gaps in the design baseline may also be identified. An E2E Design Authority will therefore be put in place as part of the Ofgem sponsorship role and will be in place throughout the DBT Phase. This E2E DA role will be supplemented by a subsidiary CSS Design Authority (provided by DCC) to support resolution of issues between CSS Providers in relation to physical design of the CSS systems (but only to the extent that these issues do not affect

the existing central data systems and services and Licensed Party systems; these being resolved by the E2E Design Authority.)

Issues and defects will arise during all stages of testing and triage and defect resolution processes will therefore be established. The issues and defects may arise as a result of test data errors; test specification errors; test execution errors and environment/ connectivity issues. These test defects should be resolved locally in respect of Pre-Integration Testing and by the SI function in respect of integration testing. However, issues that relate to the design baseline will have an escalation route to the E2E DA.

Detective Assurance

Progress reporting will be required from the CSS Providers across all stages of the DBT phase (including preparation and mobilisation) to ensure progress is tracking to plan against a common Go Live date, plus the DCC may conduct deep dive assurance reviews in its role as CSS Delivery Manager. This progress reporting will be against all elements of the CSS Project Plan and Control areas defined in Section 5

4.3.4 CSS Independent Assurance (External Assurance)

Independent and external assurance of the activities of CSS Providers will be undertaken to ensure a further degree of confidence and to confirm that no conflicts of interest have arisen and/or misinterpretation of requirements has arisen.

The CSS Providers' progress and outputs during their individual design, build and testing activities will therefore be additionally monitored and assured by the:

- CSS Procurer and Manager (DCC)
- SI (SI Procurer and Manager (DCC) and the SI Provider)
- Core Systems Assurance Provider

Progress variations to baseline (outside agreed tolerances) and any risks and issues (beyond pre-defined thresholds) will be reported to the Programme Coordination function.

CSS Procurer and Manager Assurance

The DCC, in its role as CSS Procurer and Manager, will undertake assurance of the activities and outputs of the CSS Providers to satisfy itself that it is meeting its regulatory obligations. As far as possible, this will be achieved through joint working with the CSS Provider such that any issues are identified and resolved as soon as possible.

For any assurance issues raised by DCC in respect of progress or non-conformance to requirements, the CSS Provider will be required to develop remedial action plans to address the issue raised.

SI Assurance

The SI will provide assurance of CSS Provider (and existing central data systems and service provider) design, build and test activity largely through the provision of Integration and Testing activities and services as defined in the E2E Integration Plan.

However, the SI also has a role in supporting DCC and Ofgem in identifying any issues prior to integration and testing for CSS and the existing central data systems and services;

e.g. ensuring consistent interpretation of design specifications and interface specifications in the physical design stages early in DBT.

Any issues or defects identified by the SI will be escalated to DCC in the first instance if they cannot be resolved locally or potentially impact on the baseline or agreed timelines.

Core Systems Assurance Provider

Independent assurance that the CSS Procurer and Manager, CSS Providers and the existing central data system and service providers are compliant with requirements and specifications will be provided by a Core Systems Assurance Provider. The Core Systems Assurance Provider will also monitor compliance of the existing central data system and service providers and SI Procurer and Manager/SI with any agreed Memorandum of Understanding (MOU) that is established between the SI Procurer and Manager and existing service providers; failure to meet the requirements set out in the MOU will be reported to Ofgem for resolution (which may be via its Programme Coordination function).

The independent Core Systems Assurance Provider will be appointed by DCC but must act independently of the CSS Procurer and Manager and SI Delivery Manager role (also to be provided by DCC) and will provide assurance reports to the Programme Coordination function and to the DCC Executive Board (the latter activity in respect of recommendations for improvements in the DCC's execution of the CSS Procurer and Manager and SI Procurer and Manager roles).

The Core Systems Assurance Provider will seek assurance (on an on-going basis) that DCC does not give precedence to the CSS Providers or Smart Metering with regard to testing and resolution of testing and design defects.

The final timings for procurement of the Core Systems Assurance provider have yet to be determined by the Procurement workstream, but it is expected that this role will be in place prior to the start of the DBT phase.

4.4 CSS Delivery Mobilisation & Preparation

The DCC, as part of its overall planning process (see Section 5), will provide detailed plans during the Enactment Phase that will describe the activities and resources required to support mobilisation and preparation for the DBT phase.

Likewise, the SI will develop detailed plans during Enactment for mobilisation and preparation activities in respect of its Integration, Data Migration and Testing responsibilities. This mobilisation plan will form part of the final Core Systems and Services Integration Plan.

These mobilisation and preparation plans will include activities required for the effective and efficient commencement of CSS design, build and test and for systems integration and testing in the DBT Phase, such as (but not limited to) the following:

- Setting up relevant governance and assurance mechanisms (e.g. procedures working groups, decision making bodies, etc.)
- Setting up working practices and collaborative working environments, etc.
- Due-diligence of Design and Design Specification products and artefacts

- Recruitment and on-boarding of the people required
- Establishment of Change & Configuration Management, Environment Management and Test Management processes/systems/resources
- Creation of test data, test stubs and test data to the extent possible; and
- Assistance and support with the on-boarding of the CSS Providers as well as other key participants in core systems integration and testing (e.g. existing central data system and service providers).

The CSS Provider will, as part of its proposed Programme Management approach and CSS Delivery Project Plan, identify and include all the activities required to effectively and efficiently prepare and mobilise ready for the start of the DBT Phase. The CSS Provider mobilisation and preparation activities and plan shall be aligned with the DCC and SI activities and plans.

4.5 CSS Delivery Assets & Facilities

The Core Systems and Services Integration Plan, produced by the SI, will include a list of the assets and facilities[2] that the SI will develop and use as well as the type of assets and facilities the SI requires to be provided by other organisations. The SI will record and maintain these assets and facilities in an Asset and Facility inventory register.

Likewise, the CSS Providers are required to identify a list of the assets and facilities that they will develop and use to satisfy their contract requirements, as well as the assets and facilities they expect to be provided for use by other organisations. These shall be recorded in an Asset and Facility inventory register which shall be maintained throughout the period of the contract and will include, but shall not be restricted to, the following information:

- Description of the Asset/Facility
- Version Number
- Identity of organisation providing the Asset/Facility
- Identity of organisation that the Asset/Facility has been or shall be provided to, including number of instances
- Date upon which the Asset/Facility has been or shall be provided
- Identity of person or persons that has or who shall be required to approve the provision of the Asset/Facility
- Identity of the point of contact within the CSS Provider and the organisation to whom the Asset/Facility has been or shall be provided, including contact details.

[2] This could be any physical product produced or utilised for the delivery of the CSS solution but which does not form part of the CSS solution itself; e.g. Test Environments; Test Tools; Prototypes; Test Data; Simulators; Labs, etc.

4.6 CSS Programme Management Requirements

The following table of requirements defines the minimum set of requirements that the CSS Provider will be required to satisfy in respect of provision of CSS Delivery Programme Management. This includes any associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop and adopt an appropriate Programme Management approach for CSS Delivery covering the full scope of their responsibility as an integral part of their overall delivery approach, and document this in a Programme Management Approach document.	CSS Provider's Programme Management approach documented as per (DID PM1)	Initial draft of DID PM1 with Tender response, final approach to be finalised by start of DBT phase	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of DCC Programme Management approach and plan, plus the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID PM1. Approach needs to demonstrably cover all areas in Section 4 and Section 5 of this CSS Delivery Plan
2 (New)	The CSS Provider's Programme Management approach should align to best practice principles and practices; e.g. as laid down by the APM, PMI, Prince 2, MSP, etc.	CSS Provider's Programme Management approach methodology documented and justified in DID PM1	As for DID PM1	Review and assurance by DCC to ensure approach is justified and compliant with relevant aspects of DCC Programme Management approach and DID PM1
3 (New)	The CSS Provider's Programme Management approach should support DCC in discharging its Programme Management responsibilities, including progress reporting to Ofgem and Price Control.	CSS Provider's Programme Management approach alignment with DCC Programme Management approach demonstrated in DID PM1	As for DID PM1	Review and assurance by DCC to ensure approach is compliant and compatible with relevant aspects of DCC Programme Management approach and DID PM1
4 (New)	The CSS Provider's Programme Management approach should interface seamlessly with the DCC in terms of information, tools,	CSS Provider's Programme Management approach alignment with DCC	As for DID PM1	Review and assurance by DCC to ensure approach is aligned with relevant aspects of DCC Programme

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	processes and governance.	Programme Management approach demonstrated in DID PM1		Management approach and DID PM1
5 (New)	The CSS Provider will propose appropriate governance arrangements for its delivery activities and responsibilities aligned to the DCC programme structure.	CSS Provider's governance arrangements are to be documented as part of DID PM1	As for DID PM1	Review and assurance by DCC to ensure governance aligns with DCC and wider programme governance arrangements and DID PM1
6 (New)	The CSS Provider will provide an outline programme team and organisational breakdown structure with key appointments, responsibilities, levels of delegation and RACI chart aligned to responsibilities for the key activities and outputs/deliverables (in line with the WBS and PBS in section 5 below)	CSS Provider's governance arrangements are to be documented as part of DID PM1	As for DID PM1	Review and assurance by DCC in line with DID PM1
7 (New)	The CSS Provider will define any key boards, meetings, committees, working groups, steering groups, etc. it will put in place to support engagement and decision making. This shall include membership and Terms of Reference for each together with expected involvement of external stakeholders (e.g. DCC, Ofgem, SI and others).	CSS Provider's governance arrangements are to be documented as part of DID PM1	As for DID PM1	Review and assurance by DCC, SI and Ofgem in line with DID PM1
8 (New)	The CSS Provider will develop a Stakeholder Management and Communications Plan as part of its Programme Management approach.	CSS Provider's Stakeholder Management and Communications approach and plan to be documented as part of DID PM1	As for DID PM1	Review and assurance by DCC in line with DID PM1
9 (New)	The CSS Provider will develop, plan for and undertake assurance of the full scope of its activities	Assurance approach to be documented and justified within	Initial draft of DID PM2 with Tender response, final	Review and assurance by DCC and the SI to ensure assurance regime is

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	and outputs within the contract through the design of an appropriate Assurance approach.	QA Plan (DID PM2)	approach to be finalised by start of DBT phase	fit for purpose and aligned to DCC and SI assurance approaches and Core Systems Assurance provider approach and DID PM2.
10 (New)	The Assurance approach and plan adopted by the CSS Provider should follow best practice guidance, recognising the unique characteristics and delivery environment within which CSS delivery is taking place.	Assurance approach adopted by CSS Provider to be fully justified in the QA Plan (DID PM2)	As for DID PM2	Review and assurance by DCC and the SI to ensure assurance regime is fit for purpose and follows good practice and is in line with DID PM2.
11 (New)	The CSS Assurance approach should cover: • Preventative Techniques: To prevent 'defects' entering into Live Operation • Corrective Techniques: To support resolution of defects/issues that are identified during the DBT Phase • Detective Techniques: To determine whether: the Switching Programme is 'on track' to meet the Go Live date; the CSS Provider is compliant with its contractual requirements; and to monitor risks and the effectiveness of risk mitigation activities	Assurance approach documented in DID PM2 to cover all assurance techniques applicable and justify approach in each area to be documented in DID PM2	As for DID PM2	Review and assurance by DCC and the SI to ensure assurance regime is fit for purpose and follows good practice and is in line with DID PM2.
12 (New)	The CSS Providers' QA Plan shall include a description of how it will support independent and external assurance activities by DCC, the SI and the Core Systems Assurance Provider	Support to external assurance to be documented in DID PM2	As for DID PM2	Review and assurance by DCC and the SI to ensure this is aligned to DCC and SI assurance approaches and Core Systems Assurance provider approach and DID PM2.
13	For any assurance issues raised by DCC in respect	Remedial action approach to be	As for DID PM2	Review and assurance by DCC

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
(New)	of progress or non-conformance to requirements, the CSS Provider will be required to develop remedial action plans to address the issue raised.	documented in DID PM2 together with response times based on severity of assurance issue		and the SI to ensure remedial action approach and service levels are acceptable and in line with DID PM2.
14 (New)	The CSS Provider will, as part of its proposed Programme Management approach and CSS Delivery Project Plan, identify and include all the activities required to effectively and efficiently prepare and mobilise ready for the start of the DBT Phase.	DBT phase preparation and mobilisation approach to be documented in DID PM1 with planned schedule of activities and resources to be included as part of DID PM4	As for DID PM1 and DID PM4	Review and assurance by DCC and the SI to ensure this is aligned to DCC and SI preparation and mobilisation plans and Ofgem overall Programme Plan and in line with DID PM1 and DID PM4.
15 (New)	The CSS Provider's Mobilisation and Preparation activities and plan shall be aligned with the DCC and SI Mobilisation and Preparation activities and plans.	Alignment of CSS Provider DBT phase Preparation and Mobilisation to DCC and SI Preparation and Mobilisation activities and plans to be demonstrated in DID PM1	As for DID PM1	Review and assurance by DCC and the SI to ensure this is aligned to DCC and SI preparation and mobilisation plans and Ofgem overall Programme Plan and in line with DID PM1.
16 (New)	The CSS Provider will identify a list of the assets and facilities that they will develop and use to satisfy their contract requirements, as well as the assets and facilities they expect to be provided for use by other organisations. These shall be recorded and maintained in an Asset and Facility Inventory Register.	Asset and Facility Inventory Register to be provided as per DID PM3	Initial version to be provided with bid response and then maintained throughout contract duration	Review and assurance by DCC and the SI to ensure this is acceptable and that assumptions in relation to assets and facilities expected to be provided by others can be met in line with DID PM3.

5 CSS Delivery Programme Planning and Control

In line with Section 4 above, best practice Project and Programme Management is built around effective controls covering time, cost and scope. DCC will develop a detailed plan (schedule) covering all of its activities (agreed work breakdown) and deliverables (agreed product breakdown) for the DBT phase of the programme. This DCC DBT plan will need to be fully aligned to the overall agreed Ofgem programme plan for DBT and baselined prior to the start of DBT so that any changes can be managed and controlled thereafter.

This plan will be fully resourced with internal (DCC) resources allocated as well as external resources and consultancy services. Accordingly, the CSS Providers will be required to develop their own detailed Plan (schedule) and underpinning Work Breakdown Structure (WBS), Organisational Breakdown Structure (OBS) and Product Breakdown Structure (PBS) aligned to the contract and their proposed CSS solution and delivery approach. The CSS Provider(s) plan shall be fully aligned to and integrated with the DCC DBT phase plan and Ofgem overall programme plan [14].

The allocation of internal resources and costs to the DCC plan together with external costs and resources will enable DCC to produce a cost breakdown and cost estimate for the DBT phase which will form the basis of its Business Case for the DBT phase which, once agreed, will then form the baseline for price control.

These elements together (Plan including schedule and timeline, WBS/PBS/OBS and cost model/business case) will, once baselined, form the basis for control of DCC time, cost and scope throughout the DBT phase of the programme.

5.1 CSS Delivery Project Plan (Schedule)

Each CSS Provider is required to develop a full CSS Delivery Project Plan covering its scope of responsibility and deliverables as defined in the contract. This shall be based on a defined WBS, OBS and PBS that reflects the CSS solution and its intended implementation approach which shall be agreed with DCC and baselined before the start of DBT.

The CSS Provider will develop a Gantt chart schedule and timeline aligned to the WBS, OBS and PBS to underpin its CSS Delivery Project Plan including dependencies, milestones, readiness gates and quality gates, decision points etc. The CSS Provider shall use this to demonstrate that the scope of its responsibilities can be delivered on time utilising the intended approach and resources, taking account of the Risk, Issues, Assumptions and Dependencies as defined in Section 5.3 below.

The CSS Delivery Project Plan shall be in a format that enables ease of reporting into DCC and potentially enables integrated plans to be produced and managed.

The CSS Delivery Project Plan shall be aligned with the Core Systems and Services Integration Plan, DCC Delivery Project Plan and Ofgem Overall Programme Plan.

5.2 CSS Delivery Resource Management

The CSS Provider will put in place effective arrangements for managing the human resources required to undertake their responsibilities. This shall be documented as part of their Programme Management approach and include as a minimum;

- Recruitment, on-boarding and retention

- Justification for use of contracted or external resources
- Succession Planning for key personnel identified in the OBS; and
- Compliance with employment law and inclusion of appropriate vetting of individuals [to the extent required by the contract with DCC and any additional security requirements imposed by the CSS Security Approach Document [35].

5.3 CSS Delivery Risk, Issue, Assumption and Dependency Management

At the heart of effective Project and Programme Management and Control is the identification and management of a Risks (including Opportunities), Issues, Assumptions and Dependencies (RAID) log.

This CSS Delivery Plan identifies a number of Risks, Issues, Assumptions and Dependencies relevant to CSS delivery and implementation within the broader context of the DBT phase of the programme. The CSS Provider shall take these as a starting point for developing a full RAID log as the basis for management action during the DBT phase.

The CSS Provider(s) will define and provide appropriate processes, information and tools for managing the RAID log throughout the CSS effort for DBT. This will be defined in their CSS Programme Approach document and will be aligned to the DCC RAID log and management processes, information and tools to be adopted in their role as CSS Delivery Manager.

5.4 CSS Delivery Progress Reporting

The CSS Provider will, as part of their Programme Management approach, define how they will report on progress against all aspects of the agreed CSS Delivery Project Plan aligned to the WBS and PBS.

As a minimum, this shall include an agreed Progress Report to be provided which should include progress reporting against all the areas identified in this CSS Delivery Plan and include performance monitoring against the defined indicators in Section 5.5. below and any others deemed appropriate.

Progress reporting shall be at least monthly or at a higher frequency for critical areas as agreed with the CSS Delivery Manager (DCC).

5.5 CSS Delivery Performance Metrics

The CSS Provider will track the performance of CSS Delivery using a set of performance metrics to ensure progress is effectively monitored against the requirements and specifications laid down in the contract.

The CSS Provider shall propose a set of appropriate performance metrics. These shall be agreed with DCC at contract award and should include, but not be limited, to the following:

Programme Activity	Performance Metric
Progress	• % Variance to Plan

Programme Activity	Performance Metric
	• % Variance to Baseline Plan • % Contingency Utilised • Ageing of Open/Pending Items by criticality • Earned Value Analysis against key milestone activities
Scope Management	• % Change to Requirements / Component Catalogue • % increment to Original Programme Budget • % of Change Requests (CRs) - Approved: Rejected: On Hold • % of CRs by criticality • % of "late" CRs • Cost of Delay and Cost of Rework
Risk & Issue Management	• Risk Exposure Score • % Closure and ageing of Open Risks • % Risks converted to Issues • Internal audit scores
Reporting & Communications	• % Late inclusion of stakeholders into communication groups • Stakeholder Survey Scores
Knowledge Transfer & Management	• Average delay in completion of Knowledge Transfer (KT) Tasks • KT Sufficiency Survey Scores • % Utilisation of KT Budget
Quality Management	• Standard Testing and Defect Management Metrics • Progress against Testing Glide Path • Variance to Budgeted Cost of Quality • % First Hand Pass Ratio between Phase-Gates

5.6 CSS Delivery Outputs and Deliverables

Based on the defined PBS and the deliverables and outputs required under the CSS Provider contract(s) the CSS Provider will define a list of all outputs and deliverables and these shall be included in the CSS Delivery Project Plan.

This shall include timelines for their delivery, including any required review timelines and responsibilities, as well as associated acceptance criteria for each output and deliverable.

5.7 CSS Programme Planning and Control Requirements

The following table defines the minimum set of requirements that the CSS Provider will be required to satisfy in respect of provision of CSS Delivery Programme Planning and

Control. This includes any associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop a full CSS Delivery Project Plan covering its scope of responsibility and deliverables as defined in the contract. This shall be based on a defined WBS, OBS and PBS that reflects the CSS solution and its intended delivery approach	CSS Delivery Project Plan documented as per (DID PM4)	Initial draft with Tender response, final plan to be baselined by start of DBT phase	Review and assurance by DCC and the SI to ensure alignment with DCC DBT Phase Project Plan, Ofgem Overall Programme Plan and Core Systems and Services Integration Plan and DID PM4.
2 (New)	The CSS Provider will develop a Gantt chart schedule and timeline aligned to the WBS, OBS and PBS to underpin its CSS Delivery Project Plan including dependencies, milestones, readiness gates and quality gates, decision points etc.	Part of CSS Delivery Project Plan (DID PM4)	As for DID PM4	Review and assurance by DCC and the SI to ensure alignment with DCC DBT Phase Project Plan, Ofgem Overall Programme Plan [14] and Core Systems and Services Integration Plan and DID PM4.
3 (New)	The CSS Provider shall use the Gantt chart schedule to demonstrate that the scope of its responsibilities can be delivered on time utilising the intended approach and resources, taking account of the Risk, Issues, Assumptions and Dependencies logged as defined below.	Part of CSS Delivery Project Plan (DID PM4)	As for DID PM4	Review and assurance by DCC to assess plan deliverability and risk and compliance with DID PM4.
4 (New)	The CSS Delivery Project Plan shall be in a format that enables ease of reporting into DCC and potentially enables integrated plans to be produced and managed.	Part of CSS Delivery Project Plan (DID PM4)	As for DID PM4	Review and assurance by DCC to ensure alignment with DCC planning and progress reporting and compliance with DID PM4.
5 (New)	The CSS Delivery Project Plan shall be aligned with the Core Systems and Services Integration Plan, DCC Delivery Project Plan and Ofgem Overall Programme Plan	Part of CSS Delivery Project Plan (DID PM4)	As for DID PM4	Review and assurance by DCC and the SI to ensure alignment with DCC DBT Phase Project Plan, Ofgem Overall Programme Plan and Core Systems and Services

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
				Integration Plan and DID PM4.
6 (New)	The CSS Provider will put in place effective arrangements for managing the resources required to undertake their responsibilities. This shall be documented as part of their Programme Management approach and include as a minimum; • Recruitment, on-boarding and retention • Justification for use of contracted or external resources • Succession Planning for key personnel identified in the OBS	Part of CSS Programme Management Approach (DID PM1)	As for DID PM4	Review and assurance by DCC to ensure HR management arrangements are acceptable and compliant with DID PM4
7 (New)	The CSS Provider shall develop a full Risk, Assumption, Issues and Dependencies (RAID) log as the basis for management action during the DBT phase.	Full RAID Log to be provided and maintained (DID PM5)	Initial version with tender response. Baselined version to be agreed at start of DBT and maintained as a live RAID log thereafter	Review and assurance by DCC to ensure RAID log format in line with DID PM5 with coverage acceptable, and with any significant mitigations included in the Project Plan (DID PM4), and aligned to wider DCC, SI and Ofgem RAID logs
8 (New)	The CSS Provider(s) will define and provide appropriate processes, information and tools for managing and mitigating risks, issues, assumptions and dependencies throughout the CSS effort for DBT. This will be defined in their CSS Programme Approach document and will be aligned to the DCC risk, issue, assumptions and dependencies management processes, information and tools to be	Risk, Issue, Assumptions and Dependencies management processes, tools and information to be include as part of DID PM1	As for DID PM1	Review and assurance by DCC to ensure compliance with relevant aspects of DCC RAID Management processes, tools and information and DID PM1.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	adopted in their role as CSS Delivery Manager			
9 (New)	The CSS Provider will, as part of their Programme Management approach, define how they will report on progress against all aspects of the agreed CSS Delivery Project Plan aligned to the WBS and PBS.	Progress Reporting approach to be include as part of DID PM1	As for DID PM1	Review and assurance by DCC to ensure it provides the management information required to effectively monitor and assure progress of the CSS Provider as per DID PM1.
10 (New)	The CSS Provider shall define a monthly progress report to cover all the areas identified in this CSS Delivery Plan and include performance monitoring against an agreed set of performance indicators	Progress Reports are to be provided in the format as defined in DID PM6 to be agreed at contact award	Draft Progress Report template to be provided as part of tender, and final format agreed at contract award	Review and assurance by DCC that report covers all progress information and metrics required in an acceptable format in line with DID PM6
11 (New)	The CSS Provider will track the performance of CSS Delivery using a set of agreed performance metrics to ensure progress is effectively monitored against the requirements and specifications laid down in the contract	A set of proposed performance metrics is to be submitted as part of DID PM6 and agreed by contract award	As for DID PM6	Review and assurance by DCC that report covers all progress information and metrics required in an acceptable format in line with DID PM6
12 (New)	Based on the defined PBS and the deliverables and outputs required under the CSS Provider contract(s), the CSS Provider will define a list of all outputs and deliverables and these shall be included in the CSS Delivery Project Plan.	Full list of outputs and deliverables are to be included in DID PM4	As for DID PM4	Review and assurance by DCC that the list of deliverables and outputs includes all those required and expected, including as a minimum the DIDs defined under the CSS Delivery Plan in line with DID PM4

6 CSS Design and Build

Design and Build activities undertaken in DBT (and potentially also in Enactment as part of the procurement process) will translate the E2E and CSS design specifications into physical designs comprising hardware and software, as well as associated business change, that will then be built, integrated, tested and transitioned into the live environment.

The definition of Design and Build for the E2E Switching Arrangements covers those activities required to translate the E2E and CSS baseline Design Specifications into physically realisable components of business capability (Organisation, People, Processes, Technology and Information) that, when implemented, combine to deliver the required E2E switching service.

Experience from other programmes such as Nexus and Smart Metering Implementation Programme (SMIP) has illustrated the importance of monitoring and assuring the progression of design and build activity to ensure that individual organisations responsible for change implementation interpret design specifications consistently. The relevant Governance and Assurance functions put in place for DBT also need to ensure that each party and provider is progressing in line with the agreed plans to provide confidence they will be ready in time for delivering their part of the new Switching Arrangements.

Physical Design and Build activities within the DBT phase (and potentially as part of the procurement process during Enactment) provide the first and earliest opportunity to ensure that all parties and providers translate the design specifications into physical designs and build these in a way that is consistent, transparent and traceable. Ensuring consistency in physical design and build at this early stage minimises the risk of downstream issues and defects, where they will generally involve greater time and cost impact to resolve, and hence is in line with the principle of preventative assurance discussed in Section 4.

The E2E Design and Build Plan [18] recognises that each affected party and provider will have their own techniques, methodologies, tools, etc. for undertaking this type of activity. The E2E Design and Build Plan therefore mainly covers ‘what’ needs to be done (in the form of design and build activities) and by whom, with less focus at this time on ‘how’ (detailed design and build processes, tools and techniques)

6.1 CSS Design and Build Timelines

The detailed timelines for Design and Build within the overall DBT phase programme plan[14] have yet to be baselined. Initial plans and associated timelines for the DBT phase, including any preparation and mobilisation activities in Enactment phase, will be initially developed by Ofgem and DCC for inclusion on procurement documentation. The CSS Provider(s) will be expected to define and justify their timelines for undertaking design and build (and testing) of CSS components in line with these plans, and in line with the Core Systems Integration Approach and Plan to be developed by the SI. As described at Section 5 above, the final detailed plans and associated timelines will be agreed and baselined between DCC, the SI, Ofgem and the Programme Co-ordinator prior to the start of DBT and reflected into final contracts and regulation.

6.2 CSS Design and Build Approach

The CSS Provider will detail their proposed approach for the physical Design and Build of the CSS component(s) for which they are responsible. This could be combined with CSS module and component level testing approach if this is appropriate to the approach adopted by the CSS Provider (e.g. Agile and Test Driven Design), notwithstanding the need to meet the Testing requirements laid down in Section 7 in respect of PIT.

It is recognised that there are a wide range of practices, standards and frameworks for IT and software based service design and delivery, including associated business change and project and programme management which may include ITIL, Agile (DSDM, Scrum, SAFe, etc.), eTOM, Prince 2, ISO9001, ISO20000, ISO15288, etc.

CSS Service Providers shall demonstrate that their proposed approach is appropriate for their proposed solution and technology for the component(s) they are responsible for implementing.

The CSS Provider should also demonstrate how their proposed approach could help de-risk wider CSS, Core Systems and Licensed Party Design & Build (and Test) activities, e.g. by providing physical design information of interim builds early (if using Agile approaches) and making these available to other parties and providers (via the SI).

The CSS Provider(s) will be expected to work within the overall management structure and reporting framework proposed by DCC and the SI, as part of the wider programme governance and assurance structure agreed for the DBT phase as summarised in Section 4 above.

The CSS Provider(s)' internal (self) Assurance of their Design and Build activities should be covered in the Quality Assurance plan defined in Section 4. The CSS Provider(s) will also be required to enable and support external assurance of these activities noting that this external assurance will be undertaken by DCC, the SI and the Core Systems Assurance provider and could include the following methods (but not limited to):

- Attendance at CSS Provider Design Reviews
- Documentation reviews (Design Datum packs, Plans, Test Cases, etc.)
- Examination of Defect Logs and Resolutions
- Progress Reporting
- Design Walk-throughs (Design Datum Packs or similar)
- PIT or other test witnessing (see Testing Plan for Test Assurance activities)
- Evidence of Requirements Traceability (validation)

Notwithstanding the specific Design and Build approach adopted by the CSS Provider(s), there are some principles common to best practice for the Design and Build of most IT-enabled transformational change programmes, and the CSS Provider(s) should demonstrate how their proposed approach satisfies these principles:

- Design and build should holistically address all change implications of the E2E Design Specifications, i.e. Process, People, Technology (systems, data) and Partners (suppliers and vendors).

- Designs should cover all functional (utility) and non-functional (warranty) requirements, as well as any changes required to Service Management and Security arrangements.

- Detailed design and build specifications developed by parties and providers should be document (Datum Pack or similar) and ensure requirements traceability to the higher level applicable requirements (via a Requirements Traceability Matrix or similar).

- Parties and providers should ensure they have appropriate Capabilities (management, organisation, processes, people and knowledge) and Resources (infrastructure, applications, information and finance) in place to undertake the Design and Build.

- Design and Build activities should be planned and managed with progress monitored and reported, and any remedial action agreed to ensure the required scope is delivered within agreed time and cost.

- Design and build configurations should be brought under configuration control aligned to higher level published design baselines.

- Component and Interface Testing (PIT) activities should be undertaken commensurate with the criticality of the component in line with the E2E Testing Plan

- Opportunities should be taken to de-risk designs ahead of the formal E2E Testing phases as defined in the E2E Testing Plan; e.g. through informal testing using the E2E test harness and other facilities provided by the System Integrator

- Detailed design information relating to a party or provider's implementation of interface specifications should be shared and made visible to other parties and providers via the System Integrator

- All Design and Build Risks, Issues, Assumptions and Dependencies should be recorded and managed – escalating as required (e.g. if a Design Assumption needs to be made that might affect an Interface, this should be shared across all parties who have to implement that interface so that a common agreement can be reached).

- A means of logging and triaging Defects should be in place, with escalation arrangements as required

6.3 CSS Design and Build Plan

The E2E Design and Build Plan requires that each affected party and provider will develop its own Design and Build plans relevant to the scope of its design and build activities, in line with the E2E Design and Build Plan. Plans in this context are taken to be 'Management Plans' and should include the approach for Design and Build as well as information to support

For CSS this is captured in the requirements laid down in this CSS Delivery Plan. All other parties and providers affected are expected to develop their own detailed plans for Design and Build prior to the start of DBT and align these with the Overall Programme Plan.

The CSS Design and Build Plan could be combined into a single Design, Build and Test plan (as above) if considered appropriate for the approach adopted by the CSS Provider, particularly if utilising Agile approaches, noting the need to fully satisfy the requirements in Section 7.2 below.

6.4 CSS Design and Build Status & Progress Reporting

CSS Provider(s) are required to provide periodic status and progress reporting for Design and Build activities. This will be in the form of regular status and progress reports to the DCC (as CSS Procurer and Manager) copied to the SI and the Ofgem Programme Co-ordinator, on a periodic frequency. The progress reports will include information not covered in the overall CSS Delivery programme progress reports defined at Section 5.4.

6.5 CSS Design and Build Risks, Assumptions and Dependencies

The E2E Design and Build Plan defines a number of programme/E2E level Risks, Assumptions and Dependencies applicable to E2E Design and Build. These are included and expanded on below to provide specific Risks, Assumptions and Dependencies applicable to the design and build of the CSS components.

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
End to End and CSS design Specifications do not presume a particular technology solution or include a full set of interface specifications prior to procurement of CSS Provider(s) and the SI which means that the final solution architecture, technologies and detailed interface specifications will not be finalised until closer to the start of the DBT phase	R	DCC and Ofgem to investigate the range of potential solution/technology approaches for CSS prior to procurement and understand and plan for potential implications CSS initial physical design work and development of final interface specifications will need to be done during Enactment and will require close working between procured CSS Provider(s), DCC and SI. CSS Design and interface information for chosen CSS Providers in Enactment to be shared with all other parties and providers as early to enable them to plan for and understand the scope of their design and build activities
Issues arising when translating from logical E2E and CSS designs and interface specifications (DLS), and any development of these specifications during the Enactment phase to physical designs during DBT (and any work undertaken in the Enactment phase) will lead to the need for clarification and/or different interpretations during Design & Build	R	DCC and SI together with Licensed Party Assurance, Core Systems Assurance, Programme Co-ordinator roles to ensure effective sharing and collaboration across design teams in DBT Industry parties and providers to provide transparency of evolving designs SI and Programme Co-ordinator clarifies, mediates and arbitrates on physical design issues and interpretations, with Ofgem (E2E DA role) making determinations on E2E design baseline issues

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
		Design Proving Project (DPP) knowledge and experience made available to all parties and providers as early as possible
Complex, multi-party environment leading to federated, dispersed design, build and test of components and sub-systems controlled through a variety of regulatory and commercial instruments with insufficient central visibility and oversight	R	SI will co-ordinate across all CSS and legacy central data systems DBT activity, together with interfaces out to other parties, to ensure continued alignment. Market Participant Assurance, Core Systems Assurance, Programme C0-ordinator roles will co-ordinate and assure across wider E2E market participants SI together with other DBT Assurance roles/ functions will monitor and drive readiness of all parties and providers SI/DCC will put in place and manage clear, centralised issue/defect, change and configuration management processes with clear escalation routes to Ofgem via DCC and Programme Co-ordinator roles as appropriate
System partitioning based on organisational rather than 'ideal' boundaries and hence complex interfaces between parties leading to higher numbers of errors in physical design and build	R	SI and Programme Co-ordinator roles to continually review interface specifications and their physical design interpretation across multiple parties and providers Informal testing of CSS interfaces with E2E Test Harness/CSS Test Tool provided by the SI prior to formal Integration and Testing
High likelihood of external and internal changes given complex, changing environment	R	Ofgem central Governance arrangements will need proactive and effective change management to evaluate and control internal and external change requirements REC modification process not to be enabled until after first release of new E2E Switching Arrangements
Parties and providers will be sufficiently incentivised to resource and undertake Design & Build in required timelines	A	SI together with other DBT Governance and Assurance functions/roles to monitor progress and readiness to plan, and to ensure remedial action is taken if progression and readiness are not satisfactory Binding transitional obligations to be placed on Industry parties to resource appropriately and comply with programme timelines Strong DBT Governance required to drive required behaviours and progress if parties or providers fall short

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
An E2E Test Harness/Tool or equivalent capability will be available to enable parties and providers to internally test and validate their evolving designs and interfaces with the CSS	D	This is defined in greater detail in the E2E Testing Plan and E2E Integration Plan and is expected to be one of the tools provided by the SI working with the CSS Providers. If this is not provided as an output of the DPP work, then additional costed activity should be put in the plan to adapt this so it is appropriate for the DBT phase
All parties and providers will adopt 'good practice' in design and build and have arrangements for internal assurance of this activity	A	SI, DCC and wider DBT Governance and Assurance roles to undertake external assurance, design walk-throughs, document reviews as appropriate depending on risk and criticality of change component.
All parties and providers will have arrangements in place for logging issues and defects and for the internal triage of these	A	SI together with wider DBT Governance and Assurance roles to ensure all parties and providers log and record defects and issues consistently, categorise these and escalate them for resolution as appropriate
The CSS Providers will make available interim drops of the CSS Design (via DCC)	A	Given criticality of CSS in 'hub and spoke' design, interim drops of physical design information (particularly related to interfaces) will help those interfacing with CSS to validate and check their designs. Ensure that this is fed into CSS Procurement specifications, industry codes and licence obligations on DCC as appropriate.
The CSS Provider(s) will provide sufficient information in their proposals during the Procurement process to enable the detailed Interface Specifications to be finalised prior to the start of DBT	A	Detailed procurement plan within wider Enactment phase to define information required together with roles and responsibilities for developing final detailed interface specifications. CSS Provider(s) early work specified in contract to support finalisation of the Interface Specifications (working with DCC and the SI) prior to start of DBT phase
The final, detailed plans, timescales, milestones and quality gates for Design and Build (and Integration and Testing) will need to be finalised prior to the start of the DBT phase	D	Initial DBT phase plans (including preparatory activities in Enactment) to be developed by Ofgem and DCC and included in tender packs for CSS Provider(s) and SI (and, via Ofgem, for the Programme Co-ordinator role). Final detailed DBT phase plans will be developed and baselined prior to the start of DBT taking into account final proposed solution and delivery approaches from CSS Provider(s) and SI, working with Ofgem and the Programme Co-ordinator role to ensure these are also harmonised and acceptable across all affected parties and providers so this can

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
		be reflected in the Overall Delivery Plan to be owned and baselined by Ofgem
Various parties and providers (including the appointed CSS Provider(s)) will adopt different delivery approaches and methodologies making it difficult to align and assure their activities	R	Adopt waterfall approach at whole programme/End to End solution level so that all parties and providers can be aligned around defined design, build, test and transition stages with defined gating and entry/exit criteria to assess progress and readiness Allow individual parties and providers to adopt their preferred design, build and test approaches and methodologies but aligned to common principles, requirements and outcomes SI and Programme Co-ordinator roles to look for opportunities to de-risk across all parties and providers; e.g. through sharing of physical design and build information as soon as it is available. Share lessons learned and best practice DCC and Ofgem via procurement of external assurance providers (Core Systems and Licensed Party) ensure these roles are able to assure design, build and test activities across multiple different approaches and methodologies

As defined in Section 5.4, the CSS Provider shall capture any Risks, Assumptions and Dependencies related specifically to the design and build of the CSS, as they relate to meeting the requirements defined below, and ensure that these are managed and mitigated as part of the overall RAID Management Plan for CSS Delivery. This shall include consideration of the Risks, Assumptions and Dependencies captured above.

6.6 CSS Design and Build Requirements

The following table of requirements define the minimum set of requirements that the CSS Provider will be required to satisfy in respect of design and build of the CSS. This includes and associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will define its proposed approach for Design and Build of the CSS component(s) for which they are responsible. This could be combined with CSS module and component level testing if this is appropriate to the approach adopted by the CSS Provider, notwithstanding the need	CSS Design and Build approach documented as part of the CSS Design and Build Plan (DID DB1)	Initial draft with Tender response, final approach to be finalised prior to start of DBT phase	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Design and Build Plan, and SI produced Core Systems and Services Integration Approach and Core Systems and Services Integration

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	to meet the Testing requirements laid down in Section 7.			Plan and DID DB1. Approach needs to cover requirements 2 to 5 below
2 (New)	The CSS Provider will demonstrate that their proposed Design and Build approach is appropriate for their proposed solution and technology for the component(s) they are responsible for implementing.	CSS Design and Build approach justified as part of the CSS Design and Build Plan (DID DB1)	As for DID DB1	Review and assurance by DCC and the SI to ensure proposed approach is justified and meets requirements in line with DID DB1.
3 (New)	The CSS Provider will demonstrate how their proposed approach could help de-risk wider CSS, Core Systems and Licensed Party Design & Build activities, e.g. by providing physical design information of interim builds early (if using Agile approaches) and making this available (via the SI).	CSS Design and Build approach to include opportunities for de-risking wider Design and Build and documented as part of (DID DB1)	As for DID DB1	Review and assurance by DCC and the SI to understand and verify any opportunities for wider de-risking of design and build and incorporate these into Core Systems and Services Integration Approach and Core Systems and Services Integration Plan if appropriate in line with DID DB1.
4 Section 5.4 of the E2E Design and Build Plan	The CSS Provider will demonstrate how their Design and Build approach will fit within the overall management structure and reporting framework proposed by DCC and the SI as part of the wider programme governance and assurance structure agreed for the DBT phase.	CSS Design and Build approach and associated roles, responsibilities and governance documented as part of the CSS Design and Build Plan (DID DB1) aligned with DID PM1	As for DID DB1	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Design and Build Plan and DID DB1 and alignment with DID PM1
5 Section 6.1 of the E2E Design and Build Plan	The CSS Provider will demonstrate how their proposed Design and Build approach conforms to the principles defined in the E2E Design and Build Plan [18].	Demonstration that CSS Design and Build approach conforms to the principles laid down in the E2E Design and Build Plan to be	As for DID DB1	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Design and Build Plan and DID DB1.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
		included in DID DB1		
6 Sections 2.3 and 6.2 of the E2E Design and Build Plan	The CSS Provider will develop a detailed Design and Build Plan for the CSS component(s) for which they are responsible that documents how they will satisfy all the Design and Build requirements captured in this document aligned with the E2E Design and Build Plan and any associated plans developed by the SI	CSS Design and Build Plan document conforming to DID DB1	Initial draft with Tender response, with updated plan to be baselined no later than start of DBT phase. Updates via change control thereafter	Review and assurance by DCC and the SI to ensure compliance with contractual requirements, E2E Design and Build Plan and E2E Testing Plan and SI produced Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID DB1
7 Section 5.6 of the E2E Design and Build	The CSS Provider will monitor progress against the Design and Build Plan and provide periodic status and progress reporting for Design and Build activities. Made available to the DCC, SI and E2E Programme Co-ordination roles	This will be in the form of regular status and progress reports conforming to DID DB2	Format to be proposed as part of DID DB1 prior to start of DBT. Reports are required at least monthly from start of DBT to end of design and build activities as detailed on CSS Delivery Project Plan	Review and assurance by DCC and the SI to ensure compliance with E2E Design and Build Plan, Core Systems and Services Integration Plan and DID DB2
8 Section 6.2 of E2E Design and Build Plan	The CSS Provider will Screen CSS and E2E design specifications and undertake Due Diligence of these during the tendering process. Any discrepancies or issues found shall be reported via DCC for clarification or resolution	List of any issues and discrepancies found to be formally logged as initial issues and raised to DCC for clarification or resolution	During tender response either as part of clarification process and/or as part of CSS Provider bid response	Review by DCC and the SI as part of their formative' CSS DA' role with any issues or clarifications raised by the CSS Provider to be resolved and/or escalated to Ofgem for resolution prior to contract award
8 (New)	The CSS Provider will provide sufficient design information during its tender submission to enable external to CSS interface specifications to be agreed and finalised prior to the start of the DBT phase	As part of tender response, CSS Provider to provide information for detailed external interface specifications aligned to CSS User	As part of tender response; for subsequent agreement and finalisation as part of contract negotiation and finalisation.	SI and DCC to assure information provided by CSS Provider enables full and final CSS Interface Specifications to be developed prior to start of DBT phase

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
		Requirements Specifications		
9 Section 6.2 of the E2E Design and Build Plan	The CSS Provider will document its physical designs and record associated design decisions, assumptions, etc. in a Design Datum Pack or similar, with full traceability to the associated CSS Requirement Specifications, and maintain this under configuration control	Precise format of design documentation to be proposed as part of the CSS Provider's Design & Build approach as documented in DID DB1	Initial design information to be provided as part of tender response. Thereafter, format of design documentation and requirements traceability to be agreed as part of DID DB1	Review and assurance by DCC and the SI to ensure design documentation approach and format satisfied requirements, and aligns with E2E Design and Build Plan and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan in line with DID DB1
10 Section 6.2 of the E2E Design and Build Plan	The CSS Provider will make its evolving physical design interpretation transparent to the SI and Programme Co-ordinator roles for roles to enable sharing of selected aspects (e.g. interface specifications) with other parties and providers via arrangements set up by the SI and Programme Co-ordinator roles; e.g. Design Forums and other Knowledge Sharing methods	Approach to sharing and making visible evolving design and build information for CSS to be described as part of design and build approach in DID DB1	As for DID DB1	Review and assurance by DCC and the SI to ensure approach meets requirements, and aligns with E2E Design and Build Plan and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan in line with DID DB1
11 Section 6.2 of the E2E Design and Build Plan	The CSS Provider will set up mechanisms for logging and triaging Issues and Defects, consistent with wider CSS and Core Systems level Issue and Defect Management arrangements put in place by SI	Issue and Defect Management triage and resolution approach to be documented as part of design and build (and test) approach within DID DB1	As for DID DB1	Review and assurance by DCC and the SI to ensure approach meets requirements, and aligns with E2E Design and Build Plan and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan in line with DID DB1

7 CSS Integration and Testing

Integration and testing of CSS will occur at multiple levels, progressively building up to the full integration and testing of the CSS as a bounded 'system' to verify that it meets its full set of requirements as defined in the CSS User Requirements Specification and any other applicable requirements (e.g. Security and Service Management requirements).

For the purposes of describing the CSS integration and testing requirements, the following descriptions will be used:

CSS Modules. These are the specific hardware and software modules as defined by individual CSS Providers based on their individual designs that are required to be implemented and integrated by the CSS Providers to deliver the CSS component(s) they are responsible for delivering.

CSS Components. These are the logical CSS components as defined in the design for CSS [10]. They currently include a Registration Service component and an Address Service component together with a Communications Network component. There also are service management aspects required for each CSS component and for the E2E switching arrangements as a whole.

CSS System. This is the integrated system within the E2E Switching Arrangements that meets the complete defined CSS User Requirement Specification (URS) and Non-Functional Requirements [32, 33]. This will be integrated and tested by the SI.

Existing Central Data Systems. These are the systems that provide the existing central data services; e.g. UK Link provides registration services for the gas market, together with other services such as balancing and settlement. These cover separate physical system designs not separate instances of the same physical design (for example, there are multiple instances of the MPRS system held by DNOs). Systems that have a common physical design are regarded as one system from an integration and testing perspective).

Market Participant Systems. These are the systems operated by Market Participants to fulfil their roles, and may include CRM systems and other back office systems.

E2E Switching System (Ecosystem). This is the system, which is actually a system of systems, that provides the full E2E Switching design requirements defined.

Given the closely coupled nature of the implementation of the CSS System and the changes required to the existing Central Data Systems for Switching, a 'CSS and Core Systems Integrator' (SI) role will be established to develop a systems and services integration and testing approach and then plan and execute that approach across the CSS and existing central data systems and services systems. This is termed the Core Systems and Services Integration Approach.

The Core Systems and Services Integration Approach to be developed by the SI will define the integration and testing approach to be adopted across CSS and the existing central data systems and services. This will be developed by the appointed SI in line with the End to End Integration Plan and End to End Testing Plan developed in the DLS phase of the programme. The intention is that the SI is appointed early enough to allow the Core Systems and Services Integration Approach to be developed and agreed so that it is then

available to inform and influence the final integration and testing plans and approaches for each of the contracted CSS SPs and existing central data system and service providers.

The Core Systems and Services Integration Approach will therefore be key in shaping the integration and testing for CSS and the relationship between the CSS SPs and the SI in respect of integration and testing activities and responsibilities is defined in greater detail below.

7.1 CSS Integration

7.1.1 End to End Integration Approach

The approach to system and service integration for the Switching programme was originally laid down in the System Integration Strategy produced in the Blueprint phase of the programme [4]. The Blueprint work recommended that an SI function should be established to manage Integration and Testing activities across all parties and providers during DBT, together with the need to monitor and manage physical design issues and defects.

The SI role has now developed through the DLS phase of the programme is described in more detail within the E2E Integration Plan [19] along with a high-level summary of a Design Authority and other programme co-ordination and assurance functions that have been specified by Ofgem to help manage, co-ordinate and assure DBT phase activities across all parties and providers and their systems and services.

The E2E Integration Plan builds on lessons learnt and best practices from previous industry programmes and projects of similar size and scope to the Ofgem Switching Programme. It sets out an Integration and Assurance Framework and the requirement for 3 independent[3] assurance functions together with a systems and service integration function. The assurance functions/roles are covered in Section 4.3.2 above in relation to CSS Delivery assurance

The E2E Integration Plan defines, at a high level, the responsibilities of all parties involved in the DBT phase of the Programme and includes the Enactment Phase activities that are required to mobilise & prepare for DBT. Further detail is included to provide the basis against which:

- an SI Procurer and Manager will establish the systems and service integration function and procure and manage an SI;
- the SI will develop a Core Systems & Service Integration Approach and associated Plan;
- Ofgem will establish a Programme Co-ordination Function encompassing central PMO; Industry Coordination; Programme Assurance; support to the Ofgem Senior Responsible Officer (SRO); and
- DCC will establish a Core Systems Assurance Function.

[3] Independent from the organisations they are assuring, not necessarily independent of each other

The SI function (comprising the SI Procurer and Manager and SI Provider) complements the Programme Coordinator Function to enable this role to discharge its responsibilities in support of Ofgem at the whole programme/E2E solution level.

The initial version of the E2E Integration Plan will be further developed during the Enactment phase to reflect the detailed approaches proposed by the SI and the Programme Coordination Function and maintained under change control by Ofgem.

Note: The E2E Integration Plan covers activities during the Enactment stage and DBT Phase of the Programme. Systems and service integration activities are also required post implementation and during on-going operation (in respect of future releases). The full set of SI requirements will be set out in a Systems Integration Requirements specification [37] which will be used by the SI Procurer and Manager (DCC) as the basis for establishing a systems integration function and procuring an outsourced SI capability (the SI Provider).

SI Procurer and Manager

The SI Procurer and Manager will establish processes (including resources) during the Enactment phase to manage SI activities and provide an integration service (aspects of which may be insourced or procured as part of an outsourced SI Provider contract).

This integration service will include provision of a 'help desk' for all parties, including the CSS Provider(s), to log requests for integration support. A testing issue/defect management service will also be provided by the SI and the SI Procurer and Manager will ensure that testing artefacts (test data, testing stubs) are available for use by all categories of testing participant.

In respect of CSS component integration, the CSS Providers will be required to participate in the SI's triage and defect management process. Disputes between the SI and the CSS Provider regarding the outcome of the triage/defect management process will be escalated to the SI Procurer and Manager for determination **where these do not impact the wider design baseline or programme timelines** (in which case they will be escalated to Ofgem, as the Design Authority, for determination).

The SI Procurer and Manager will also establish a CSS Design Authority Function as set out below.

The SI Procurer and Manager will likewise manage resolution of escalated testing/issues defects in respect of testing undertaken by existing central data system and service providers and Licensed Parties with the CSS. However, the Programme Coordination function will act as the escalation point between the SI Procurer and Manager and testing participant/provider in the event of a dispute/disagreement.

The SI Procurer and Manager will manage the development of a dress rehearsal process for cutover to live operation and direct the SI during the dress rehearsal and transition process, monitoring progress and providing reports to the E2E Performance Assurance Function.

The Integration Service provided by the SI during DBT will continue into post Go-Live operation until such point as the new Switching Arrangements are deemed, by Ofgem,[4] to

[4] It is expected that Ofgem in consultation with the REC Panel will establish criteria against which system/service stability will be assessed in line with the E2E Post-Implementation Plan – see Section 8.2 below

be stable. The SI Procurer and Manager will ensure compatibility of the systems and service integration function with the E2E Switching Arrangements Service Management strategy and E2E Post-Implementation Plan to enable a smooth transition between programme phases.

SI Provider

The SI Provider will have responsibility for management of the integration and testing, transition and data migration activities across the CSS components and between the CSS Providers and the existing central data system and service providers, including interfaces with Licensed Parties and their agents and providers.

As defined in the E2E Testing Plan, the SI provider will also have a role in supporting wider Market Participants (mainly Licensed Parties but with some support to their testing with Agents) through the management of a testing schedule, co-ordination of test activities with these organisations, provision of test tools, test environments and test data and provision of a triage and testing issues/defect management service.

Triage and Testing Issue/Defect resolution activities that are undertaken with CSS Providers will be escalated to the SI Delivery Manager for resolution unless the defect impacts the design baseline or overall programme plan timelines, in which case it will be further escalated to Ofgem by the SI Procurer and Manager. Testing Issues/defects that fall across one or more CSS Service Providers and other central data systems and service providers or with Licenced Parties will be escalated to Ofgem for resolution if they cannot be resolved by the SI Procurer and Manager and/or they have an impact on programme plan timescales or the E2E design baseline. The SI's role in Testing (including defect and environment management) is further set out in the E2E Testing Plan and section 7.2 below.

The manner in which the SI Provider will execute systems and service integration activities, including data migration and transition cutover to live operation) must be set out in a Core Systems and Service Integration Approach document (see below) which will be developed by the SI in the Enactment phase and early DBT phase of the programme and approved by the SI Procurer and Manager. These transition cutover activities will include in-flight switch management of 'held' switch transactions.

The SI Provider will set out the detail of all capabilities that are required to manage, coordinate, execute and support the systems integration and testing effort in DBT and will specify the support (including assurance activities) that is provided to Ofgem, independent assurance functions, CSS Providers, existing central data system and service providers and that which is available to other Market Participants.

The support that is expected to be provided by the SI Provider will include (but is not limited to):

- Systems integration and technical senior specialists to support the Ofgem DA (i.e. TDA) function during DBT
- Specialist integration and interface resources to support Industry Parties during DBT
- Specialist data migration resources to support the various data migration work-streams

- Triage resources to support Defect Management during DBT
- Additional test analysts and testing specialists to support testing efforts throughout Design and Build, as well as to support testing during integration (e.g. E2ET, Live-Rehearsal, etc.)
- Additional operational transition specialist resources to assist and support Operational Transition and Post-Implementation.

The SI Provider will provide a matrix describing these support activities, as well as to whom they can be provided. The SI Provider will also reflect this resourcing view in the Programme Resource Plan.

The CSS Provider will need to state their assumptions in respect of resources and support expected from the SI and this shall be documented in their CSS Delivery Project Plan and associated RAID log as covered in Section 5 above.

The E2E Design Authority (E2E DA)

Design Authority (DA) is a function which establishes and maintains a design baseline and ensures that the consequences of any business process, architecture, data and technical change decisions are understood. Ofgem will provide the role of E2E Design Authority role throughout the DBT stage; noting this may transition to new governance arrangements at a future point in time.

The E2E DA will maintain a consistent, coherent and complete perspective of the E2E design and architecture, defining the programme critical interfaces and integration points, such that business operations across the Switching Arrangements can be changed and benefits secured in a coordinated manner across the industry.

On behalf of the SRO, the E2E DA will act as the ultimate arbitrator of design issues and testing issues/defects that relate to the design baseline, irrespective of the testing stage/phase during which these defects arise. It will:

- Ensure that the solution design is ‘fit for purpose’ and propose and/or approve changes to the design.
- Ensure that the solution design adheres to a common set of design principles
- Develop and impose controls over programme change activities from architecture and design perspective.
- Define and enforce adherence to the architecture policies, standards, methodologies, processes, tools and frameworks.
- Arbitrate and resolve disputes on design and testing issues/defects relating to the design baseline.

The E2E DA is expected to establish resources (including tools and capabilities) to fulfil this function directly or via an outsourced service provider.

The following diagram illustrates the relationship between the SI and the DA function during the DBT phase of the programme,

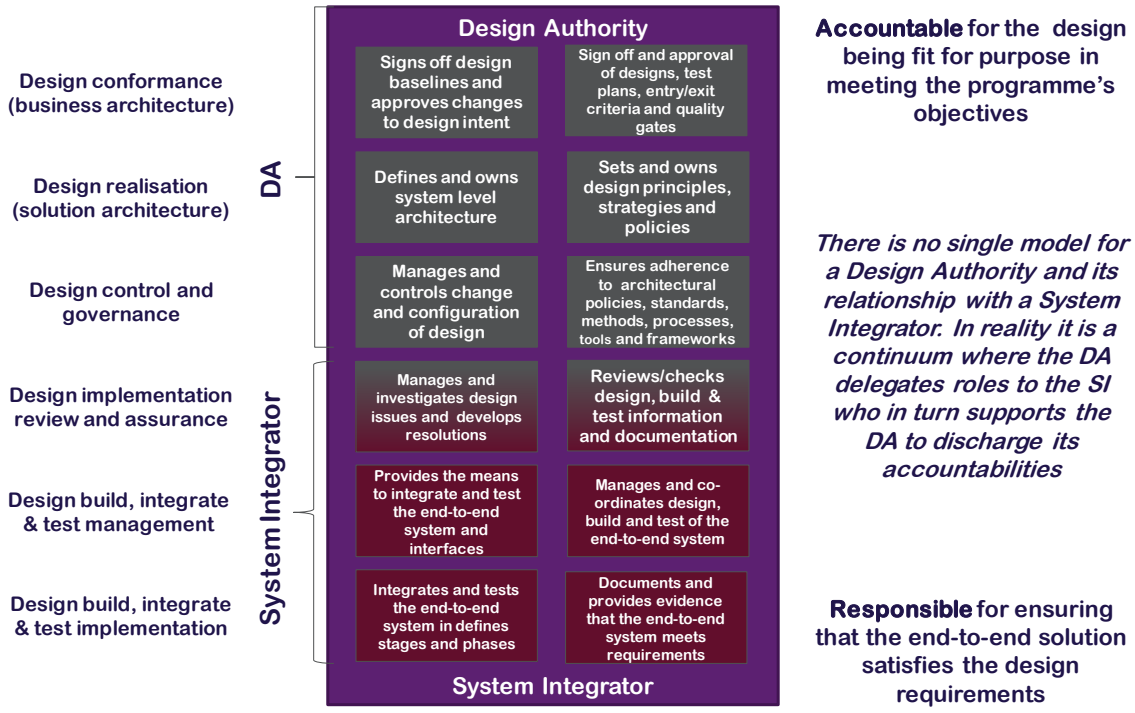

Figure 4 - Illustrative relationship between the SI and DA

The CSS Design Authority

Given the complex nature of the programme, it is expected that a subsidiary CSS Design Authority will be required, acting under delegation from the E2E DA, in respect of the components of the CSS system (excluding wider existing central data systems except the interface specifications to these) and this function will be provided by the DCC aligned to its role as CSS and SI Procurer and Manager. Figure 4 therefore applies equally to this CSS DA role for those aspects delegated from the E2E DA.

Acting in this role of CSS DA, DCC will maintain a consistent, coherent and complete perspective of the CSS physical design and architecture, defining the programme critical interfaces and integration points. It will act as the ultimate arbitrator of design issues and testing issues/defects that relate to those aspects of the Switching Arrangements that are delivered by the CSS Provider(s) unless these testing issues/defects impact the E2E design baseline or other existing central data system and service providers and Market Participants, in which case they will be escalated to Ofgem.

In the role of the CSS DA the CSS and SI Procurer and Manager will:

- Ensure that the solution design is 'fit for purpose' and propose and/or approve changes to the design.
- Ensure that the solution design adheres to a common set of design principles
- Develop and impose controls over programme change activities from architecture and design perspective, establishing a configuration management system.
- Define and enforce adherence to the architecture policies, standards, methodologies, processes, tools and frameworks.

- Arbitrate and resolve disputes on design and testing issues/defects relating to the design baseline

The CSS and SI Procurer and Manager is expected to establish resources (including tools and capabilities) to fulfil this function during the Enactment Stage of the Programme.

The Core Systems and Service Integration Approach

As above, the SI Provider will be required to develop a further version of the existing Blueprint Integration Strategy and an associated Core Systems and Service Integration Approach [15].

The Core Systems and Services Integration Approach will be used by the SI to:

- integrate the individual Centralised Switching Service (CSS) components (e.g. the Address Service with the Registration Service)
- integrate the CSS components with existing central data systems and services[5]; and
- provide integration and testing service to integrate Market Participant[6] systems and business processes with the CSS.
- Migrate data to the CSS from existing central data systems and services; and
- Manage transition and cutover activities including CSS data migration.

These documents, along with a final version of this E2E Integration Plan, will be produced by the SI during the Enactment phase of the Programme and finalised during the early stages of DBT, and will define the optimum order of integrating and testing the components and sub-systems that comprise the core systems aspects of the new E2E Switching Arrangements and their interfaces with Market Participant systems. The Core Systems and Services Integration Approach must be coherent and aligned with the E2E Programme Plan which will be developed by the Ofgem-procured Programme Coordination Function.

The Core Systems and Services Integration Approach will provide clear direction and guidance to the CSS Provider(s) to enable them to plan their DBT activities and participate in Pre-Integration Testing (PIT), Systems Integration Testing (SIT) and User Integration Testing (including UEPT and E2E Testing) as well as the other Test Phases defined in the E2E Testing Plan.

In developing the Core Systems and Services Integration Approach, the SI will liaise with other parties, including the CSS Provider(s) and take into account the realisation time of the different components of the Switching Arrangements, their scheduled delivery order, their level of complexity, the technical risks, the availability of integration tools and environments, costs, deadlines, specific personnel capability and other relevant considerations.

[5] UK Link, MPRS/MPAS, DES, ECOES and Smart Metering.

[6] Market Participants includes all parties that are involved in the switching ecosystem, irrespective of whether they are licenced by Ofgem or not e.g. it included Agents, MAPs etc.

The E2E Integration Strategy and Core Systems and Services Integration Approach will take into account the range of business scenarios that may arise during live operation and ensure that these are fully exercised during Integration and testing. Integration activities, together with testing activities as defined in the E2E Testing Plan, will include: system and service integration and testing; all functional and non-functional requirements, including security and service management, and any temporary mechanisms used to enable effective Data Migration and Transition.

The CSS Provider(s) will be required to ensure and demonstrate that all aspects of its proposed delivery approach are aligned with and compliant with the Core Systems and Services Integration Approach.

The Core Systems and Service Integration Plan

The Core Systems & Services Integration Plan [16] to be developed by the SI will define the systems integration and testing activities that are undertaken in DBT and in preparation for DBT in line with the Core Systems and Services Integration Approach.

The SI Provider will develop the Core Systems & Service Integration Plan and this will:

- describe the systems & service integration effort in the form of: timelines, activities, tasks and milestones; and
- resources, skill sets, experience level and activity / task assignment in the project plan (for Resource Capacity Planning purposes).

The Core Systems and Services Integration Plan will be developed by the SI Provider in cooperation with other key participants in the systems integration and testing activities such as the CSS Provider(s), existing central data system and service providers, the E2E System Co-ordination & Programme Assurance functions and Licensed Parties and their providers and agents.

The CSS Provider will ensure that their CSS Delivery Project Plan is aligned with the CSS and Core Systems Integration Plan in respect of all relevant design and build, integration, testing, transition and post-implementation activities and requirements covered by this CSS Delivery Plan document.

The hierarchy of documents that will be produced by the SI during the Enactment Stage is illustrated in Figure 5 below.

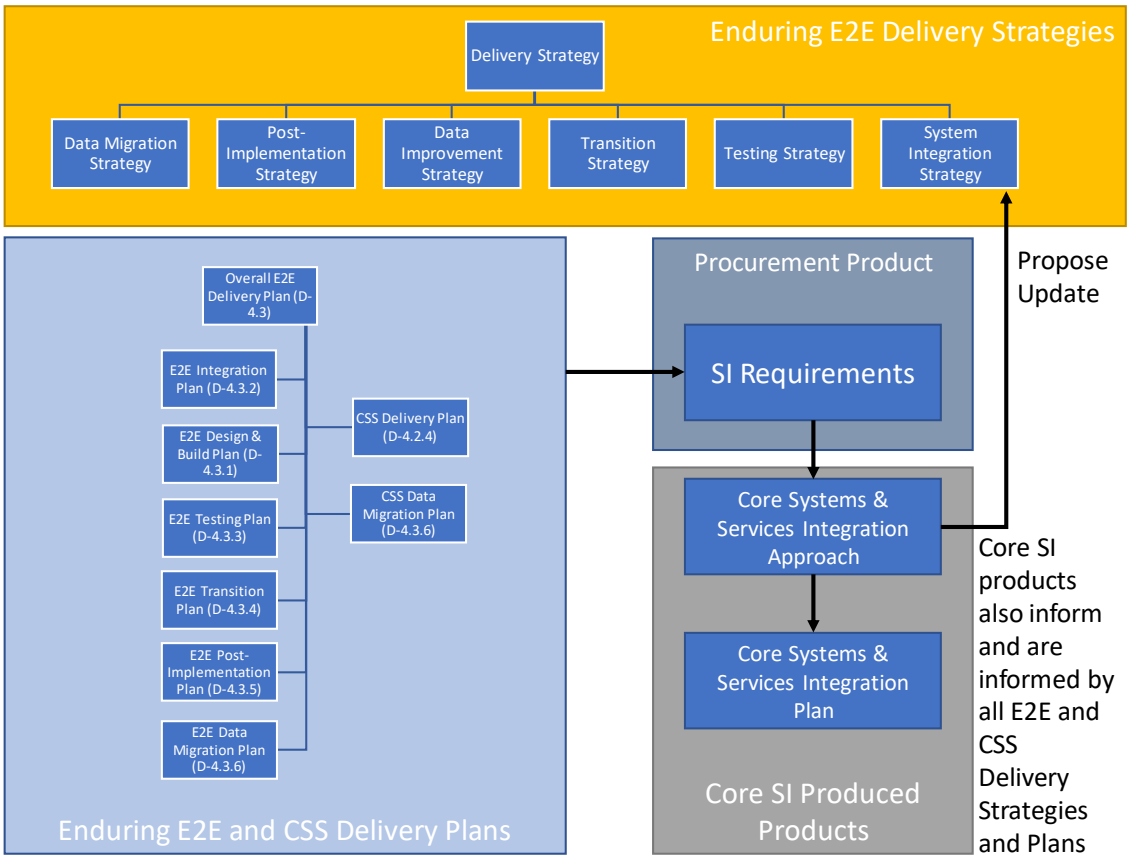

Figure 5 – Breakdown of Products produced by SI during Enactment, showing relationship with E2E Delivery Plans and Strategies

Integration Readiness

The SI will establish quality gates for:

- the entry of systems and processes into Systems Integration Testing (SIT).
- the entry of systems and processes from SIT into later stages of testing as set out in the E2E Testing Plan.

Quality gate meetings will be chaired by the SI Delivery Manager.

The SI will recommend and prescribe the appropriate criteria, checklists and activities needed to facilitate an effective and efficient Integration Readiness function for DBT and will confirm that resources, test cases, test environments, network connectivity, security requirements and necessary tools are in place and ready to start integration and testing activities. This shall be defined in the Core Systems and Services Integration Approach and Plan.

The SI will inform the Programme Coordination function when a release of the new Switching Arrangements solution has passed Integration Readiness, and is ready for promotion to the next stage or phase of testing in DBT.

The SI will also support the Programme Coordination function and Ofgem in developing entry and exit criteria for other E2E stages and phases; in particular the E2E Transition stages as defined in the E2E Transition Plan, as well as the Post-Implementation stage as defined in the E2E Post-Implementation Plan.

The CSS Provider will be required to provide evidence that the defined Integration Readiness Quality Gate criteria have been met in respect of the CSS Component(s) they are responsible for.

Operational Readiness

As defined in the E2E Integration Plan, the SI is expected to develop and implement one or more Operational Readiness gates, and set of processes to support these gates, to confirm that all parts of the core solution (CSS and existing central data systems and services), including environments, tools and resources, are ready for promotion to the Production (Live) environment and ready for takeover by the Business as Usual (BAU) activities of the CSS Provider(s), CSS Delivery Manager and existing central data system and service providers. (It is assumed that the Licenced Party Assurance Function will perform the same role in respect of Licenced Parties).

This will form part of the wider readiness (exit) criteria for the Transition stages and final cutover (Go-Live) as defined by the Programme Coordination Function and Ofgem in line with the E2E Transition Plan.

The SI will be required to provide a detailed complete and refined checklist of operational readiness criteria for CSS and the other core systems and services, which should be documented in the Core Systems and Service Integration Approach, and these should include (but not be limited to):

- Back-up, Restore and Recovery (including Rollback)
- Performance, Reliability and Stability
- Security
- Disaster Recovery (including Failover) and Business Continuity Plans
- Data Centre / Server Rooms or IT Cloud Prover Infrastructure
- Resource, skills and experience
- Available and continuous Training and Knowledge Transfer
- Lines of Communication (between the various organisations including vendors/providers supporting IT Service Operations and future solution releases)

The CSS Provider(s) will be required to provide evidence that the final defined Operational Readiness Quality Gate criteria have been met in respect of the CSS Component(s) they are responsible for.

7.1.2 CSS Integration Risks, Assumptions and Dependencies

An initial view of key Integration Risks, Assumptions and Dependencies is captured in the table below as they relate to the design and build of the CSS components.

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
The Core Systems and Services Integration Approach developed by the SI will not be fully aligned to the final CSS solution and its technology	R	DCC (as procurer of CSS Provider(s) and SI) will ensure effective communication between final CSS Provider(s) and SI during Enactment phase to ensure that the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan are fit for purpose and aligned to final CSS solution and technology. Core Systems Assurance may be used prior to finalisation of Core Systems and Services Integration Approach and Core Systems and Services Integration Plan to ensure these are fit for purpose and aligned to final physical CSS solution proposed
External-to-CSS physical Interface Specifications will not be fully defined early enough to enable other parties and providers to begin their physical design and build activities to meet overall required timescales	R	Initial interface specification to be defined as part of CSS Design work in DLS, but not to an extent that might close down innovative technology options from CSS Providers CSS providers to be requested to provide physical interface specification (external to CSS) for their prosed solution and technology as part of tender response or as early as possible thereafter
The CSS Providers will need visibility of the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan to finalise their CSS Delivery approaches and project plan (covering Design, Build, Testing, Transition, Data Migration and Post-Implementation)	D	DCC to procure SI early to enable Core Systems and Services Integration Approach and Plan to be developed and provided to CSS Provider(s) prior to start of DBT Note: Core Systems and Services Integration Approach and Core Systems and Services Integration Plan will also be dependent to an extent on proposed CSS solution and technology from winning providers and these interdependencies will require careful management by DCC during the Enactment phase CSS Provider(s) will need to develop initial delivery approaches as part of tender proposals and then these will need to be finalised as part of final contract negotiation and finalisation once Core Systems and Services Integration Approach and Core Systems and Services Integration Plan
The SI will provide environments, data, tools and Triage services to support all Test Phases from the E2E Testing Plan except for the Pre-Integration Test Phase	A	CSS Provider(s) will lead on PIT Test Phase planning and execution, reporting progress to the SI and DCC The CSS Provider(s) will fully support all other test phases, including issue/defect triage and resolution in line with defined service levels/response times

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
If more than one CSS Provider is selected (i.e. multiple CSS components provided by separate SPs) the SI will plan for and manage integration and testing across the CSS components	A	In this scenario, the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan will cover CSS integration and testing as the early part of SIT prior to wider integration and testing with other core systems and services In this scenario, the SI will finalise and control internal to CSS interfaces (i.e. between CSS components) as well as external to CSS interfaces
A Test Harness/CSS Test Tool will be provided by the SI to enable any system component/sub-system to simulate its interaction with the wider switching ecosystem as part of the PIT phase	A	DCC (as SI Delivery Manager) to ensure and assure that the CSS Test Tool/Test Harness provided by the SI is fit-for-purpose and made available in time for PIT by all parties and providers (including the CSS Provider(s))
Those parties and providers interfacing with the CSS will not correctly and consistently interpret the external-to-CSS interfaces within their own physical designs	R	The Design, Build and Test aspects covered in later sections of this CSS Delivery Plan are aimed at partly mitigating this risk The SI will additionally support the CSS DA function undertake by DCC to monitor physical interpretations of the interfaces and proactively address issues as they arise The Core Systems Assurance role may additionally be utilised at key quality gates and review points to provide independent verification of designs across the interfaces.
The SI will manage and co-ordinate Data Migration and Transition activities leading up to final cutover to liver operations; including management of in-flight switches	A	Core systems transition, data migration and cutover activities will be planned and managed by SI and is expected to be detailed in Core Systems and Services Integration Approach and Core Systems and Services Integration Plan. The CSS Provider will be expected to fully support this process and align their activities and plans with relevant aspects of the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan

As defined in Section 5.4, the CSS Provider shall capture any Risks, Assumptions and Dependencies related specifically to the integration of the CSS, as they relate to meeting the requirements defined below, and ensure that these are managed and mitigated as part of the overall RAID Management Plan for CSS Delivery. This shall include consideration of the Risks, Assumptions and Dependencies captured above.

7.1.3 CSS Integration Requirements

The following table of requirements define the minimum set of requirements that the CSS Provider will be required to satisfy in respect of provision Integration for the CSS. This includes and associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 Section 5.6 of the E2E Integration Plan	The CSS Provider will be responsible for designing, building, integrating and testing the modules that comprise the CSS Component(s) for which they are responsible.	Integrated and tested CSS components that fully meet the CSS requirement specifications in line with the design and build, integration and testing requirements set out in this document.	Timelines to be finalised as part of detailed DBT phase plan (see Section 5)	DCC and the SI will provide assurance that the new CSS systems and services have successfully completed Pre-Integration Testing and that all gate criteria are met prior to the introduction of the CSS into integration testing (SIT). For DCC, this may include Factory Acceptance Testing (see section 7.2)
2 Sections 7 and 8 of the E2E Integration Plan	The CSS Provider will ensure that all aspects of its proposed delivery approach, as summarised and justified in its overall CSS Delivery Approach (DID Del1), are aligned to and compliant with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan	Approaches and Plans for Design and Build, Integration, Testing, Transition and Post-Implementation produced in accordance with this CSS Delivery Plan are compliant with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan	Initial verification as part of bid process. Final verification when each delivery approach and plan is baselined in accordance with the requirements in this document	Review and assurance by the DCC and SI to ensure the CSS Provider's approaches and plans for delivery fully comply with this CSS Delivery Plan and the E2E Delivery Plans. May also be assured independently by Core Systems Assurance provider
3 (New)	The CSS Provider will be required to develop an overall Integration and Testing Approach for the CSS component(s) they are responsible for. The integration and testing of each CSS component must be aligned with the overall Core Systems and Services Integration Approach and	Integration and Testing Approach to be documented in accordance with DID Int1	Initial approach to be provided as part of tender response. Final approach to be agreed and baselined prior to start of DBT	Review and assurance by DCC and the SI to ensure the CSS Integration and Testing Approach meets the requirements in Section 7 of this plan and is aligned with the Core Systems and

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	Core Systems and Services Integration Plan developed by the SI.			Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
4 Section 5 of the E2E Integration Plan	The CSS Providers will support the development and maintenance of the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and participate in integration testing and testing with Licenced Parties as required by the SI.	To be covered in Integration and Testing Approach (DID Int1)	As for DID Int1	Review and assurance by DCC and the SI to ensure the CSS Provider is resourced to undertake this activity in line with the Core Systems and Services Integration Approach Systems and Services Integration Plan and DID Int1
5 Section 5 of the E2E Integration Plan	The CSS Provider will otherwise support the SI in integration and testing of their CSS Component(s) with other CSS and Core systems and services including (but not limited to): • Ensuring DBT phase activities are completed in accordance with the requirements set out in the Core Systems and Services Integration Approach; including readiness for integration testing and compliance with any gate entry criteria that are required by the SI or other co-ordination and assurance functions; • Complying with directions from the Programme Coordination Function to execute specific activities that are set out in the Overall Programme Plan and any subsidiary plans. • Providing resources (including people, environments and testing artefacts as defined in the E2E Integration and E2E Test Plans) to support integration activities	To be covered in Integration and Testing Approach (DID Int1)	As for DID Int 1	Review and assurance by DCC and the SI to ensure the CSS Provider is resourced to undertake this activity in line with the E2E Testing Plan, E2E Integration Plan, Overall Programme Plan, Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	• Co-operating with the SI and Programme Coordination functions in a timely manner during test execution, triage and testing issue/defect resolution activities and data cleansing/ data migration activities.			
6 Section 5.6 of the E2E Integration Plan	CSS Providers will support cross industry working groups to help resolve matters which may include design baseline changes, development of test tools and resolution of cutover issues (for example).	To be covered in Integration and Testing Approach (DID Int1)	As for DID Int 1	Review and assurance by DCC and the SI to ensure the CSS Provider is resourced to undertake this activity in line with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
7 Section 5.6 of the E2E Integration Plan	CSS Providers will participate in triage and testing issue/defect resolution activities in a timely manner in accordance with the requirements set out in the E2E Testing Plan and are responsible for making defect fixes and systems/process changes in a manner that matches the priority of fixes/changes agreed across the programme.	To be covered in Integration and Testing Approach (DID Int1)	As for DID Int 1	Review and assurance by DCC and the SI to ensure the CSS Provider is resourced and prepared to undertake this activity in line with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
8 Section 8.5 of the E2E Integration Plan	The CSS Provider will state their assumptions and dependencies in respect of resources and support expected from the SI and this shall be documented in their CSS Delivery Project Plan and associated RAID log as covered in Section 5 above.	CSS Provided RAID log (DID PM5) to include assumptions and dependencies in respect of SI provided resources and services	As for DID PM5	As for DID PM5
9 Section 5.6 of the E2E Integration Plan	In respect of CSS component integration, the CSS Providers will be required to participate in the SI's triage and defect management process.	To be covered in Integration and Testing Approach (DID Int1)	As for DID Int 1	Review and assurance by DCC and the SI to ensure the CSS Provider's triage and defect management approach is in line

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
				with and supports the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
10 Section 10 of the E2E Integration Plan	The CSS Provider will provide evidence that the defined Integration Readiness Quality Gate criteria have been met in respect of the CSS Component(s) they are responsible for.	Will be provided through Test Completion Report for PIT (see Section 7.2) plus any other evidence for Integration Readiness as required by the Core Systems and Services Integration Approach	Timelines to be agreed in line with Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and Overall Delivery Plan	Review and assurance by DCC and the SI of PIT Test Completion Report and any other evidence required to meet Quality Gate criteria once defined by SI in Core Systems and Services Integration Approach and Core Systems and Services Integration Plan. Key quality gate may also be subject to independent assurance by Core Systems Assurance
11 Section 11 of the E2E Integration Plan	The CSS Provider will provide evidence that the final defined Operational Readiness Quality Gate criteria have been met in respect of the CSS Component(s) they are responsible for.	Will be provided through satisfactory completion of all relevant Test Phases plus any other evidence for Operational Readiness as required by the Core Systems and Services Integration Approach	Timelines to be agreed in line with Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and Overall Delivery Plan	Review and assurance by DCC and the SI of Test Evidence and any other evidence required to meet Quality Gate criteria once defined by SI in Core Systems and Services Integration Approach and Core Systems and Services Integration Plan. Key quality gate may also be subject to independent assurance by Core Systems Assurance

7.2 CSS Testing

The E2E Testing Plan [20] describes the major Phases of testing leading up to Go-Live which are summarised below. These are defined in greater detail in the E2E Testing Plan, including constituent test stages where known, together with associated inputs and outputs and roles and responsibilities for each Test Phase and Test Stage identified.

- Pre-Integration Testing (PIT), where each new or changed component system (e.g. CSS Components, UK Link, supplier's systems, shipper's system) is tested in isolation by its responsible provider or Market Participant;

- Systems Integration Testing (SIT), where first the components of CSS are integrated and tested together and then CSS is integrated and tested with the other existing central data systems and services (UK Link, MPRS, Smart Metering, DES, ECOES). CSS integration will be carried out by the Core Systems Integrator (SI) as will integration of CSS with all the existing central data systems and services, supported by the system and service providers, without the involvement of Market Participant systems;

- User Integration Testing (UIT), where the CSS and other core systems are provided by the SI as a testing service (supported by the system and service providers), to which Market Participants may connect to conduct their own testing, including E2E switches between suppliers;

- Data Migration and Transition Testing (DMT), where the approach and tools for data migration and transition to live are tested by the SI, supported by the CSS Provider(s) and existing core system and service providers;

- Operational Testing (OT), where operational functions and processes are tested by the SI; and

- Live Proving, involving all parties including Market Participants and allows Ofgem to assess the readiness for live operation.

As a principle, the E2E Testing Plan states that Pre-Integration Testing for each CSS component must complete before CSS integration commences, CSS integration and Pre-Integration Testing for each existing central data system and service component must complete before Systems Integration Testing commences and Systems Integration Testing must complete before User Integration Testing commences, unless otherwise agreed by the Programme Gating process. Data Migration and Transition Testing, Operational Testing and Live Proving may run concurrently with each other and with User Integration Testing.

A separate Plan will be required for each of these Phases before the Phase commences by the party or provider responsible for that Phase of testing, which will include details of the testing to be conducted and the entry and exit criteria. In the case of Pre-Integration Testing, a separate Plan will be produced for each existing central data system and a separate one for each component of CSS, if applicable, under the co-ordination and assurance of DCC and the SI function (with any independent assurance as required by the Core Systems Assurance provider).

A CSS Simulator test tool(s) will be provided by the SI prior to the commencement of PIT as a testing aid for Licenced Parties and their agents to install on their own

systems, together with pre-defined test data and scripts which execute business scenarios. A Licenced Party and associated MAPs and Agents wishing to conduct testing of its own against the core systems or to connect to the Production environment will first be required to demonstrate its system's capability by successfully completing a User Entry Process Test(s).

Providers of CSS and existing central data systems and services will be required to provide test environments, define tests and participate in testing and defect resolution for all of the above Phases.

A risk-based approach to testing will be adopted, with the depth and breadth of testing determined by the risk. The test coverage of each Phase will be demonstrated by the use of Requirement Traceability Matrices, where the controlling requirements for a Phase are listed and a mapping given to the relevant test cases.

7.2.1 E2E Testing Plan Objectives

The E2E Testing Plan defines the following objectives:

- To define the testing and assurance activities necessary to demonstrate that the end-to-end Switching Solution meets the requirements set out in the Design Baseline and the Solution Architecture;
- To mitigate the risks of poor quality components and systems being introduced into live operation;
- To ensure that the level of testing assurance meets the requirements of key stakeholders (including Licenced Parties);
- To establish the governance arrangements for the testing assurance activities;
- To identify the responsibilities and obligations of those involved in testing; and
- To act as the primary point of reference for all testing and testing assurance questions, with further details being provided in the individual Test Plan documents relating to each Test Phase and Stage.

7.2.2 E2E Testing Principles

The E2E Testing Plan defines the following principles underpinning the way in which testing will be conducted:

- Changes to a system will first be tested on that system in isolation by the responsible party or provider;
- The Core Systems Integration function (SI) will conduct the integration and testing of the components of CSS;
- The SI will also conduct the integration and testing of existing systems with the CSS by:
    - Testing the integration of the core systems and services (using test stubs to replace Licenced Party and Agent/Meter Asset Provider (MAP) interactions);

- Testing the data migration and transition strategy and approach on core systems and services; and

- Providing a testing service for Licenced Parties, where Licenced Parties may connect and test against core systems and services. An obligation will be placed on each Licenced Party to provide evidence of its organisation's and system's readiness to connect to the testing service.

- The SI and the Switching Operations Team[7] will together conduct operational testing of the system prior to go-live; this will include at least one full end-to-end rehearsal, involving all the CSS and all existing central data systems and services and as many Licenced Parties as possible (who are ready).

Pre-Integration Testing of CSS

The purpose of PIT is to validate each new or changed component system in the E2E Switching Solution individually for compliance with its functional and technical requirements, including its interfaces to other E2E Switching Solution systems.

PIT will be carried out on each component system in isolation, on a system-by-system basis. The relevant Licenced Party or Service Provider will be responsible for its own PIT.

Accordingly, each CSS provider will conduct PIT in accordance with the E2E Testing Plan and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan, including supporting the test assurance process, as described in section 14 of the E2E Testing Plan. Each CSS component will each be tested individually in PIT before being integrated to form CSS as the early part of SIT.

System Testing

As part of PIT, each CSS Provider will conduct testing of its own component system ("System Testing"), for which it will provide any test tools and environments necessary. As described in Section 6, it is recognised that CSS Providers may adopt a range of physical delivery methodologies (design, build and test) which may include Agile approaches. Irrespective of the approach and methodology adopted by the CSS Provider, they will be required to meet the defined testing requirements for PIT as defined in the E2E Testing Plan as expanded on in this CSS Delivery Plan.

A single CSS component system may have constituent sub-systems and modules. It is expected that each sub-system will each undergo some form of Unit and Link Testing[8] by the CSS Provider, before integration to form a coherent System ready for System Testing.

The final integration and testing approach used for each CSS component will be determined by the relevant CSS Provider and documented in its Integration and Testing Approach document (see section 7.1). Testing is expected to follow relevant industry standards and will be described and planned in detail the CSS PIT Plan document.

The CSS provider is expected to provide the following inputs to PIT:

[7] This is the team or teams that will be set up to provide the steady state service management and operations functions for the new switching arrangements as required under regulation

[8] Unit testing covers testing of the constituent hardware and software modules that make up the CSS Component whilst Link testing covers the linkages or internal interfaces between these modules

- CSS Test Report
- CSS PIT Plan

The CSS Provider will also take as inputs to this PIT test phase the CSS requirement specifications [10] and CSS Interface Specifications [13].

The CSS Provider is expected to provide the following outputs and deliverables:

- Test Scenarios, Cases and Scripts
- Acceptance Test Specification
- Test Infrastructure/ Environments and Data
- Test Tools (including for performance/ other non-functional testing)
- Executed System Tests
- Executed Acceptance Tests
- Regression Test (RT) Pack created or updated
- Test Completion Report:
  - Functional Testing
  - Non-Functional Testing
  - Regression Testing
- Acceptance Test Completion Report

Interface Testing

Following System Testing, all component systems will undergo Interface Testing, which demonstrates the correct interaction of the component System with the CSS Simulator test tool provided by the SI. The Simulator will be designed to be installed on the party's and provider's own test environment and enable the party or provider to run a standard set of business scenarios, and record the results. The CSS Simulator will be easily configurable, to change the base data and the tests executed.

The inputs will be described in the PIT Plan. For CSS Provider(s) this will include the following:

- The Test Environment for the CSS Simulator test tool

The outputs required from the CSS provider(s) at this stage include:

- Executed Tests with recorded results
- Test Completion Report:

- Functional Testing
- Non-Functional Testing
- Regression Testing

7.2.3 CSS Security Testing with Smart Metering Infrastructure

The smart metering requirement on registration data provided to the Data Services Provider is that it is compliant with relevant Smart Metering Key Infrastructure (SMKI) requirements and that, as a user of a gamma link into DSP, the CSS Provider is required to conduct SMKI Entry Process tests and can obtain and apply certificates and that it completes the processes to become a DCCKI/IKI user.

7.2.4 CSS Involvement in Other Test Phases

The other Test Phases described in the E2E Testing Plan (SIT, UIT, DMT, OT and Live Rehearsal) will be design and managed by the SI. The CSS Provider(s) are expected to offer full support to these Test Phases as required in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and individual Test Plans developed by the SI for each of these Test Phases. Specifically, CSS Provider(s) will be required to prepare for these tests (in line with the Test Plans developed by the SI), support test execution and test issue/defect triage and resolution (see below).

For its part, the SI will provide assistance to the Service Providers in their assigned test preparation, test execution and issue/defect triage and resolution activities, ensuring that they have the requisite information to undertake these activities.

7.2.5 Test Process

The test scripts in each formal Test Stage will be mapped back to the corresponding design document and the requirements document by means of a Requirements Traceability Matrix, so that the breadth of test coverage can be measured and verified. This will be done by the provider responsible for producing the test scripts.

The depth of test coverage (i.e. how “thoroughly” each solution element is tested) will be determined by the CSS Provider based on a risk assessment of:

- the importance to the market of the various solution elements; and
- the technical probability of test issues being present in each solution element.

With results documented in the PIT Plan

This approach will apply to:

- all types of testing (e.g. functionality, security, performance);
- initial testing of solution elements during the PIT;
- testing of fixes and enhancements to these elements during the Pre-Integration, Systems Integration, Operational Testing and User Integration Test Phases; and
- Regression Testing of these elements.

The risk assessment will be included and justified in the relevant Test Plan for each Test Phase in line with the E2E Testing Plan (section 11). The risk assessment will also be used to prioritise test preparation and test execution activities.

The following activities will be performed for the Programme:

- Preparation and maintenance of the E2E Testing Plan (by Ofgem);
- Support of preparation and maintenance of the E2E Testing Plan (by Programme Co-ordinator, SI Delivery Manager and SI);
- Preparation and maintenance of an Environment Plan (by SI).

The following activities will be performed by the CSS Provider for the PIT Phase:

- Preparation and maintenance of PIT Plan;
- Design of testing infrastructure (e.g. Environments);
- Implementation of testing infrastructure (as for Design above); and
- Test Phase planning

The following activities will be planned for and performed by the CSS Provider for each PIT Test Stage and described in the PIT Plan:

- Identify Test Scenarios
- Design of Test Scripts, and production of Test Specification document and Requirements Traceability Matrix
- Design and preparation of Test Data
- Preparation of Test Execution Schedule
- Perform Quality Gate Reviews
- Execution of testing
- Defect Management
- Defect resolution
- Release Management
- Configuration Management
- Test Progress Reporting
- Test Assurance

7.2.6 Test Organisation and Management

The E2E Testing Plan defines the overall testing organisation and management aligned to wider DBT phase governance and assurance as defined in D-8.2 [27]. The CSS provider is required to define its organisation and management arrangements for testing in line with the E2E Testing Plan, Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and document this as part of its CSS Integration and Testing approach (see Section 7.1).

As defined above, each CSS Provider will be responsible for planning, managing and executing its PIT testing. Each CSS Provider will use and manage its own processes, staff, test environments, test data, test tools and test labs for PIT, noting the need to report progress and escalate defects upstream to the SI.

Each CSS Provider will provide the following (to DCC, the SI and Core Systems Assurance provider as required):

- Test Plan documents ahead of test execution;
- Regular progress reports in the run-up to and during test execution for each PIT Test Stage (see below); and
- A Test Completion Report at the end of each stage of test execution.

The progress of each Test Stage will be reported by the party or provider responsible for managing the associated Test Phase. Test progress reporting shall cover:

- Pre-testing progress, via weekly Test Readiness Reports;
- Test execution, via weekly Test Execution Reports; and
- Post-testing wrap-up, via the Test Stage Completion Report.

7.2.7 Test Assurance

External to CSS Provider test assurance is defined in the E2E Testing Plan and will be further elaborated on for CSS and the other core systems in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan. The CSS Provider is required to define its internal (self) assurance approach for Testing as part of the QA Plan (see Section 4) including how it will support and enable external assurance. This is also to be covered in the CSS Integration and Testing approach (see section 7.1)

Each CSS Provider will establish procedures to assure its own Pre-Integration Testing and confirm compliance with the E2E Testing Plan and their individual PIT Plan. This assurance will include reviewing the testing undertaken by third parties supplying modules or sub-systems of their CSS component solutions, and performing acceptance testing (Goods-In Testing) of such modules and sub-systems.

The Central Systems Test Assurance Team (part of the SI role) will assure the SPs' PIT using a range of methods and approaches as defined in the E2E Testing Plan

7.2.8 Entry and Exit Criteria

Formal testing will be gated by a set of generic and specific Entry and Exit Criteria operating at the Test Phase and Test Stage levels. The E2E Testing Plan defines the generic entry and exit criteria for Test Phases and Test Stages.

The CSS Provider is required to propose specific entry and exit criteria for each test phase and test stage it is responsible for and document these in the Test Plan for that test phase or test stage.

A series of Quality Gate Reviews will be held between Test Stages to confirm that the Exit Criteria of the preceding Test Stage and the Entry Criteria of the upcoming Test Stage have been met. These will be conducted by the CSS Provider, with the participation of the Central Systems Test Assurance Team (SI) and open to the Core Systems Assurance provider if needed.

At the end of a Test Phase or Stage, a review will be held to confirm that the Exit Criteria of the Phase or Stage have been met. For CSS, these reviews will be conducted by SI, supported by the Central Systems Test Assurance Team, with the participation of the relevant CSS Providers. A successful review will result in a Certificate of Test Stage/Phase Completion being issued.

If a Certificate of Test Stage/Phase Completion has been issued subject to completion of a Work-Off Plan and the Work-Off Plan has not been completed within the applicable time period, then the Certificate of Test Stage/Phase Completion will be revoked unless the failure relates solely to Severity 4 test issues.

7.2.9 Test Environments

The various test environments required are defined in Section 12 of the E2E Testing Plan.

The SI will be responsible for producing an overall Core Systems Environment Plan, which will describe the deliverables, responsibilities, etc for all Test Environments. In principle, each CSS Provider will be responsible for furnishing an environment consisting of its component, linked to the other components in a way that mimics as far as possible their links as they will be in the Live system.

Prior to Go-Live, the minimum requirement will be for a single PIT environment per CSS component. Following Go-Live, an additional PIT environment will be needed for all CSS components, at the same version as Production, to allow for testing Production patches.

The CSS Provider(s) will provide an environment on which to run the Switching Performance Testing Tool.

The CSS Provider(s) will provide an Environment Management Plan for their environments.

7.2.10 Test Data

For PIT for the CSS Components, establishment and management of the test data used will be the responsibility of the relevant CSS Provider.

7.2.11 Test Tools

For PIT, any tools necessary for the System Testing stage will be the responsibility of the relevant CSS Provider to develop and provide. For the Interface Testing stage of PIT, the SI will make available a CSS Simulator, which will simulate the actions of CSS and the wider ecosystem by responding to a message sent into it and sending out messages in the way that CSS will do, for principal business scenarios (without being a fully-functional prototype). It will be expected to be installed on the infrastructure of the organisation conducting PIT.

A Data Tool will be used in several Phases to create test data for the central data system and services. Each Service Provider will need to develop a tool which allows data provided in an agreed format, such as csv file, to be loaded into its system, in order to ensure the integrity of the test data across the Switching Solution.

7.2.12 Test Issue and Defect Management

The E2E Testing Plan (Section 15) defines the Issue and Defect Management approach, process, categorisation and prioritisation, tools, roles and responsibilities, governance and reporting. It is expected that the SI will define and finalise the overall capability required for Issue and Defect management during the DBT Phase across all parties and providers, and the SI will be required to develop a comprehensive Defect Management Plan for DBT. The SI will also be expected to define a process for escalating and resolving design issues that are raised during the DBT Phase, as part of an issue resolution process.

The CSS Provider(s) will be expected to comply with this Defect Management Plan. Any variations to the standard approach defined must be described in the relevant Test Plan document for a phase or stage and fully justified.

All Test Phases will have the following defect management features in common:

- Defects will be logged in a suitable repository/tool by the body responsible for running the test;
- Full details of each defect will be recorded in the repository/tool, to enable speedy resolution and, where relevant, traceability back to requirements, design, build and test artefacts;
- Defects will be triaged by the Triage Team and reviewed by the Triage Panel on a regular basis, in order to:
    - classify them;
    - ensure sufficient information has been collected;
    - set their Severity and Priority; and
    - assign them to the relevant Resolver group/domain.

A Test Defect Manager will be assigned by each CSS Provider who will regularly review outstanding test defects to ensure that they are resolved at the requisite speed, and will report progress to the SI Overall Defect Manager and other stakeholders.

7.2.13 CSS Testing Risks, Assumptions and Dependencies

Risks, Assumptions and Dependencies applicable to Testing for the CSS aligned to the E2E Testing Plan are summarised in the table below.

Testing Risk, Assumption or Dependency	Type	Mitigation and Management Actions
Different interpretations of interface specifications by individual parties/providers in Design & Build leads to many issues and defects in SIT	R	Ensure full interfaces specifications are agreed and baselined prior to start of DBT (SI and E2E DA) Use CSS Simulator Test Tool provided by SI to de-risk interfaces (SI) Incentivise use of CSS Simulator Test Tool Sharing and transparency of party and provider designs during Design & Build (SI and Programme Co-ordinator facilitated)
Lack of availability of representative Test Data of required quality leads to reduced confidence in testing results	R	Test Data required identified early and sourced in time for testing (Individual parties and providers for PIT; SI for all their Test Phases) Any confidentiality issues (commercial or personal) understood early and resolution facilitated (Ofgem)
Impacts on wider Switching and Market ecosystems not picked up in Testing	R	Obligations on industry code panel to help identify where changes needed and to help Ofgem identify SCR scope Risk based analysis of potential impacts on 'unchanged' parts of wider ecosystem (SI) Appropriate regression testing in PIT and E2E Test Phases (parties and providers and SI) Effective Live Rehearsal (SI and Ofgem)
Individual party and provider testing (PIT) does not progress to meet required timescales and/or quality of testing is not sufficient to provide confidence in individual designs prior to SIT and UIT	R	Clear Entry criteria set and agreed for SIT and UIT (SI and Programme Co-ordinator) Consider transitional regulatory incentives to encourage required progress (Ofgem) Consider appropriate commercial incentives on CSS SPs and DCC SPs wrt Smart Metering (DCC) Progress monitored and reported regularly (SI) Assurance and assistance provided by SI based on risk (SI) Core Systems Assurance provides further independent assurance and advice in high risk areas

Testing Risk, Assumption or Dependency	Type	Mitigation and Management Actions
Test Environment capacity not sufficient to support multiple parties and providers requirements simultaneously	R	Analysis of Test Environment requirements early on as part of Core Systems and Services Integration Approach (SI) Effective planning and management of party and provider use of Environments (SI)
Defect resolution by relevant party or provider does not meet required service levels (response times) resulting in increasing backlog of defects delaying closure of Test Phases	R	All parties and providers to be resourced to deal with expected Issues and Defects; as per Defect Management Plan Regular review of Defect Management performance with remedial actions agreed for parties and providers not achieving required performance Escalation to Ofgem governance if a party or provider fails to remedy poor performance
Test timescales get compressed to meet planned Go Live date resulting in reduced test coverage or quality	R	Accurate 'left to right' planning for Testing to be performed by all parties and providers (including SI) Test timescales to be defended through Programme governance Test coverage and defects to be prioritised to focus on most critical areas if time is capped
All parties and providers will provide adequate resources, test environments, test data, test tools, etc for PIT and in support of other Test Phases	A	Via assurance of Test Plans (PIT) by SI and/or Ofgem
The Design Proving Project will have validated the E2E Design functional requirements and all findings will be made available to all parties and providers	A	Ofgem and DCC to make sure all DPP information is provided to all parties and providers DPP findings will also be made available to SI to enable development of CSS Test Tool
A SI will be appointed and will be responsible for overall management and coordination of Testing (including Defect Management, Environments, etc) as defined in the E2E Integration Plan	A	Keep E2E Testing Plan aligned withE2E Integration Plan (Ofgem) Core Systems and Services Integration Approach and Core Systems and Services Integration Plan to be developed by SI to be fully assured by DCC and Ofgem to ensure compliance with E2E Integration and Testing Plans and alignment with CSS final solution and technology
SI will be responsible for CSS integration	A	This assumes that CSS components will be procured from separate CSS Providers and will need integrating by a third party. If a single SP wins contract to provide all CSS components, then CSS

Testing Risk, Assumption or Dependency	Type	Mitigation and Management Actions
SI will be responsible for integration between CSS and other central systems (UK Link, MPRS, DES, ECOES, DSP);		integration may be more appropriately undertaken by that SP under assurance of the SI and DCC
A CSS Simulator Test Tool will be provided by the SI to support PIT	A	Ensure SI Requirements includes this and it meets needs for Testing (Ofgem and SI Delivery Manager)
There will be a function which manages the day-to-day running of the E2E Switching Solution, once it is in live operation, together with operating and managing CSS.	A	Review and assurance by DCC and Ofgem that E2E Testing Plan, Core Systems and Services Integration Approach and Core Systems and Services Integration Plan aligns with final E2E and CSS Service Management strategy, approach and requirements
The CSS will consist of more than one component. The number of components will depend on the solution procured and since this is not yet known, the assumption has been made that there will be separate components for each of: the network, the Address Service, the central registration system, and the service management function. It is assumed that a different Service Provider (SP) will be engaged for each one and that integration of these components will be done by the SI function.	A	To be revalidated once Procurement process determines components and SPs (SI Delivery Manager and Ofgem). SI to produce final Core Systems and Services Integration Approach and Core Systems and Services Integration Plan to align with final agreed CSS solution architecture, interfaces and scope of each SP responsibility
There will be an Assurance function, encompassing design, build, integration and test assurance, which will be provided by Ofgem (for Market Participant systems) and the SI Delivery Manager (for Core systems).	A	To be validated to reflect final D-8.2 Governance and Assurance Plan for DBT agreed by Ofgem E2E Testing and Integration Plans to be updated and aligned in light of this and Core Systems and Services Integration Approach to be aligned to final agreed assurance regime (SI Delivery Manager)
Each Test Phase/Stage will be dependent on satisfactory completion of previous Test Phases/Stages, and agreed work-off plans	D	SI to monitor and co-ordinate progress, and to escalate if sufficient progress not being made
Testing will be dependent on the output from DPP	D	Ofgem to make DPP output available to all parties and providers (including SI)

Testing Risk, Assumption or Dependency	Type	Mitigation and Management Actions
Testing will be dependent on provision of representative Industry Test Data being made available to SI	D	SI to define Test Data requirements from existing Industry early and Ofgem to identify any potential legal or regulatory issue in providing this and help facilitate resolution
Testing will be dependent on Design and Build activity having completed on time	D	Programme Co-ordinator (for Market Participants) and SI (for Core Systems) will co-ordinate and report progress; escalating as required
Testing will be dependent on final designs for: Systems; Data; Interfaces; Data Migration approach and Service Management	D	Final design details to be made available to Testing asap so that final Test designs (Scenarios, Test Cases, Test Scripts, Test Data, Test Environments, etc) can be developed in time
Testing will be dependent on final E2E Integration Plan, and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan developed by SI	D	Update E2E Testing Plan to reflect final Integration Plan and SI approach and plan as developed once known (Ofgem/SI Delivery Manager)
Testing will be dependent on full co-operation of all parties and providers	D	Ensure incentives and regulation drive required behaviours (Ofgem)
Testing will be dependent on Test Environment design and co-ordination	D	SI to be contracted to design and manage the provision of suitable Test Environments and publish to all parties and providers

As defined in Section 5.4, the CSS Provider shall capture any Risks, Assumptions and Dependencies related specifically to the Testing of the CSS, as this relates to meeting the requirements defined below, and ensure that these are managed and mitigated as part of the overall RAID Management Plan for CSS Delivery. This shall include consideration of the Risks, Assumptions and Dependencies captured above.

7.2.14 CSS Testing Requirements

The following table of requirements define the minimum set of requirements that the CSS Provider will be required to satisfy in respect of Testing for the CSS. This includes and associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop an Integration and Testing approach that is compliant with all aspects of the E2E Testing Plan and the requirements laid down in this CSS Delivery Plan and is aligned to the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan	Part of the Integration and Testing Approach document (DID Int1)	As for DID Int1	Review and assurance by DCC and the SI to ensure the CSS Integration and Testing Approach meets the requirements in Section 7 of this plan and is aligned with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
2 Section 5.1 to 5.3 of E2E Testing Plan	The CSS Provider will undertake Pre-Integration Testing (PIT) for the CSS Components for which it is responsible in line with the E2E Testing Plan including System Testing and Interface Testing	CSS Provider's approach to PIT to be documented as part of DID Int1	As for DID Int1	Review and assurance by DCC and the SI to ensure PIT Approach meets the requirements of the E2E Testing Plan and is aligned with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
3 (New)	As part of PIT, unless advised otherwise by the SI, the CSS Provider shall conduct SMKI Entry Process tests to obtain and apply certificates.	The CSS SP will be responsible for documenting this testing n its Integration and Test Approach (DID Int 1) with detail in the PIT Plan (DID T1)	As for DIDs Int 1 and T1	DCC and SI review and assure that the CSS PIT testing includes completion the SMKI Entry process test and becomes a DCCKI/IKI user. The key is to be acquired by CSR generated by the CSS prior to verification visit to DCC RA, and signed by IKI following successful completion of processes set out in the SMKI RAPP

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
4 Section 5.1 to 5.3. 11.4 and 13.1 of E2E Testing Plan	The CSS Provider will develop and maintain a PIT Plan covering all proposed test stages for the PIT phase; as a minimum including System Testing and Interface Testing as defined in the E2E Testing Plan	PIT Plan produced in accordance with DID T1	Initial draft with Tender response, final version to be finalised in line with the SI's predefined timescales (Core Systems and Services Integration Plan)	Review and assurance by DCC and the SI to ensure alignment with E2E Testing Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID T1. Additional assurance to be provided by the Cores Systems Assurance provider if required.
5 Section 13.1.1 of E2E Testing Plan	Each CSS Provider will use and manage its own processes, staff, test environments, test data, test tools and test labs for PIT, noting the need to report progress and escalate issues and defects upstream to the SI.	To be fully documented in the PIT Plan (DID T1), including any assumptions in relation to resources, services or assets to be provided externally in support of PIT	As for DID T1	Review and assurance by DCC and the SI to ensure that all resources, assets, environments, services, data, tools, etc. required for PIT are identified with clear and acceptable responsibilities for provision and maintenance as per DID T1
6 Sections 6 to 10 of the E2E Testing Plan	The CSS Provider will offer full support to all other Test Phases identified in the E2E Testing Plan as expanded on in the individual Test Phase Plans developed by the SI for each of these Test Phases. Specifically, CSS Provider(s) will be required to prepare for these tests (in line with the Test Plans developed by the SI), support test execution and test issue/defect triage and resolution.	To be documented as part of the Integration and Testing Approach document (DID Int1)	As for DID Int1	Review and assurance by DCC and the SI to ensure the CSS Integration and Testing Approach meets the requirements in Section 7.1 of this plan and is aligned with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Int1
7 Section 11.1 of the E2E Testing Plan	The test cases and scripts developed by the CSS Provider for each Test Stage shall be mapped back to the corresponding design document and the requirements document by means of a Requirements	Requirements Traceability Matrix to be maintained by the CSS Provider in	As for DID DM2	Review and assurance by the DCC and SI to ensure traceability and coverage of test scripts aligns with requirements

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	Traceability Matrix, so that the breadth of test coverage can be measured and verified.	accordance with DID DM2		and is compliant with DID DM2
8 Section 11.1 and 11.2 of E2E Testing Plan	The depth of test coverage (i.e. how "thoroughly" each solution element is tested) will be determined by the CSS Provider based on a risk assessment of: • the importance to the market of the various solution elements; and • the technical probability of test issues being present in each solution element. With the results documented in the PIT Plan. This shall be applied to: • all types of testing (e.g. functionality, security, performance); • initial testing of solution elements during the PIT, SIT, OT and UIT Phases; • testing of fixes and enhancements to these elements during the Pre-Integration, Systems Integration, Operational Testing and User Integration Test Phases; and • Regression Testing of these elements.	Test coverage approach to be covered in DID Int1 with specific coverage of PIT test stages to be included in DID T1	As for DIDs Int1 and T1	Review and assurance by DCC and the SI to ensure test coverage approach (in DID Int1) and actual recommended coverage for each test stage in PIT (DID T1) comply with the requirements of the E2E Testing Plan and Core Systems and Services Integration Approach
9 Section 13.2 of the E2E Testing Plan	The progress of each Test Stage will be reported by the CSS Provider for PIT and shall cover: Pre-testing progress, via weekly Test Readiness Reports; Test execution, via weekly Test Execution Reports; and Post-testing wrap-up, via the Test Stage Completion Report.	Proposed format and frequency of test reports to be included as part of DID Int1. Progress reports as a minimum for testing will be required in accordance with DID T2, DID T3 and DID T4	See DIDs Int1, T2, T3 and T4	Review and assurance by DCC and the SI that test progress reports prosed as part of DID Int1 comply with minimum requirements. Progress then to be reviewed and monitored by DCC and the SI in line with DIDs T2, T3 and T4

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
10 Section 14.2 of E2E Testing Plan	The CSS Provider will establish procedures to assure its own Pre-Integration Testing and confirm compliance with the E2E Testing Plan and their individual PIT Plan. This assurance will include reviewing the testing undertaken by third parties supplying components of their service solutions, and performing acceptance testing (Goods-In Testing) of such components.	To be included as part of overall Assurance approach and documented in QA Plan (DID PM2) with specific detail in Integration and Testing Approach (DID Int1) and PIT Plan (DID T1)	In line with DID PM2, DID Int1 and DID T1	Review and assurance by DCC, the SI to ensure alignment with E2E Testing Plan and Core Systems and Services Integration Approach
11 Section 14.4 of E2E Testing Plan	The CSS Provider will propose specific entry and exit criteria each constituent PIT test stage it is responsible for and document these in the PIT Plan.	To be documented in the PIT Plan in accordance with DID T1	As for DID T1	Review and assurance by DCC and the SI to ensure alignment with E2E Testing Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID T1.
12 Section 14.3 of E2E Testing Plan	The CSS Provider will hold Quality Gate Reviews between Test Stages in PIT to confirm that the Exit Criteria of the preceding Test Stage and the Entry Criteria of the upcoming Test Stage have been met, with the participation of the SI Central Systems Test Assurance Team.	To be documented in the PIT Plan in accordance with DID T1	As for DID T1	Review and assurance by DCC and the SI to ensure alignment with E2E Testing Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID T1.
13 Sections 5.1 to 5.3 and 11.4 of E2E Testing Plan	The CSS Provider will design and implement any test infrastructure (e.g. Test Environments) required to undertake PIT for the CSS Components it is responsible for in line with the E2E Testing Plan	Integration and Testing Approach (DID Int 1) and PIT Plan (DID T1) to demonstrate compliance	As for DID Int1 and DID T1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and Services Integration Approach

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
14 Section 12.1 of E2E Testing Plan	Prior to Go-Live, the CSS Provider will provide a single PIT environment as a minimum per CSS component. Following Go-Live, an additional PIT environment will be needed for all CSS components, at the same version as Production, to allow for testing Production patches.	Integration and Testing Approach (DID Int1) and PIT Plan (DID T1) to demonstrate compliance pre Go-Live, with Post-Implementation Plan (DID PI1) covering post Go-Live	As for DID Int1, DID T1 and DID PI1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and Services Integration Approach and Environment Management Plan if separately produced by SI
15 Section 12.1 of E2E Testing Plan	The CSS Provider will provide an environment on which to run the Switching Performance Testing Tool.	Integration and Testing Approach (DID Int 1) and PIT Plan (DID T1) to demonstrate compliance	As for DID Int1 and DID T1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and Services Integration Approach
16 (New)	The CSS Provider will develop and maintain and Environment Management Plan for the environments for which they are responsible	Environment Management Plan produced in accordance with DID T5	Draft with tender response. Updated and baselined version agreed prior to start of DBT and maintained under change control thereafter	Review and assurance by DCC and the SI to ensure compliance with this requirement and the SI produced Environment Management Plan [26] and Core Systems and Services Integration Approach and DID T5
17 Section 12.2 of E2E Testing Plan	For PIT for the CSS Provider will supply and manage the test data required.	Integration and Testing Approach (DID Int 1) and PIT Plan (DID T1) to demonstrate compliance	As for DID Int1 and DID T1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and Services Integration Approach
18 Section 12.3 of E2E Testing Plan	For PIT, the CSS Provider will supply any tools necessary (except for the CSS Simulator Test Tool which will be provided by the SI).	Integration and Testing Approach (DID Int 1) and PIT Plan (DID T1) to demonstrate compliance	As for DID Int1 and DID T1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
				Services Integration Approach
19 Section 15 of the E2E Testing Plan	The CSS Provider(s) will comply with the SI produced Defect Management Plan [28]. Any variations to the standard approach defined must be described in the PIT Plan and fully justified	Integration and Testing Approach (DID Int 1) and PIT Plan (DID T1) to demonstrate compliance with SI Defect Management Plan [28]	As for DID Int1 and DID T1	Review and assurance by DCC and the SI to ensure alignment with E2E Testing Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and SI produced Defect Management Plan (if separately produced)
20 Section 15.1 of E2E Testing Plan	A Test Defect Manager will be assigned by each CSS Provider who will regularly review outstanding test defects to ensure that they are resolved at the requisite speed, and will report progress to the SI Overall Defect Manager and other stakeholders.	CSS Provider Testing organisation and management arrangements to be documented in Integration and Testing approach (DID Int1)	As for DID Int1	Review and assurance by DCC and the SI to ensure compliance with this requirement in line with E2E Testing Plan and Core Systems and Services Integration Approach and DID Int1
21 New	The CSS Service Provider shall conduct a Factory Acceptance Test (FAT) which will be held at the end of the PIT Stage to demonstrates that the system design and build meets the CSS specifications (as defined in the Acceptance Test pat of the PIT Plan	Acceptance tests to be documented as part of PIT Plan		DCC will review and assure the Acceptance Tests within PIT provide adequate evidence that CSS can be accepted contractually to have met the minimum requirements at that stage, noting full contractual acceptance of CSS will be subject to satisfactory completion all test phases, transition and early life performance

8 CSS Release and Deployment

8.1 CSS Transition to Live Operations

In the Blueprint phase of the programme, Ofgem explored a range of 'phased' transition approaches for the release and deployment of the new E2E Switching Arrangements. The phasing approaches considered a range of options, including geographical, by consumer type, by meter type, by fuel, etc. These phasing options were all rejected on two main grounds: the need for costly and complex dual-running of systems and services; and the potential to disadvantage subsets of consumers and/or suppliers. Ofgem concluded that a single, market wide release of the new E2E Switching Arrangements was the most preferable transition option.

However, it is fully recognised that this market-wide cutover to the full switching capability as defined in RP2a is a high-risk approach. In the DLS phase of the programme, Ofgem explored ways in which this transition approach could be de-risked and subsequently they have developed a staged approach for implementation leading up to the go-live event, based on introducing parts of the new arrangements in stages, but retaining a single cross-market go-live event for CSS as the master system for registered meter points.

A staged approach enables the progressive introduction of interfaces between CSS and other central data systems in a production or pre-production environment to migrate, cleanse and transform data (and validating that this is stable) prior to Market Participants interfacing to the CSS (and changing their interfaces to the legacy systems).

The E2E Transition Plan [21] defines the overall approach for transition of the new E2E Switching Arrangements into live operations. Three transition 'stages' are defined, together with a pre-transition stage and a post-implementation stage (covered separately in Section 8.1 below), The main transition stages are summarised below.

Note: Transition stages should not be confused with testing phases for parts of the system and individual systems as defined in the E2E Testing plan and Section 7.2. Before the system components and interfaces identified below are assembled at each Transition Stage, they will need to be fully tested.

8.1.1 Preliminary Transition stage: Preparation of existing systems

A preliminary stage will comprise changes to legacy systems, ensuring that these systems capture data aligned to the new E2E data model. These changes will centralise data that is currently distributed across the industry and ensure that mastery of these data is aligned to the new data governance model. In addition, some new data items will be generated from existing data, where required by the new end-to-end data model.

Existing owners of affected data systems and services will be required to carry out the changes. Ofgem will develop transitional requirements in order to direct parties and providers to undertake the appropriate activity (and programme assurance functions will need to ensure that it is completed to an appropriate standard in the required timescales).

Activity at this stage must be complete before data migration into the CSS is started. In some cases, existing data items will be modified (transformed) and cleansed specifically for migration into the CSS (for example in with the creation of new indicators). As this activity is independent of development of the CSS, it does not necessarily need to wait until the transition stages below, although the System Integrator will be required to ensure

that the requisite activities have been completed to an adequate standard, without risk of compromising existing processes and activities, before progression to the next stage.

8.1.2 Transition Stage 1: CSS establishment and data migration

Stage 1 sees the initial integration and synchronisation of industry central systems in a production or pre-production (staging) environment and the initial migration of Meter Point and Registration data to CSS. At this stage, data will be migrated from MPRS and UK Link to populate the CSS via a mixture of temporary and production interfaces. This will allow some of the production interfaces between these systems and the CSS (including the CSS's ability to receive data in the appropriate format) to be established and validated. At this point, the CSS will not be the master for any registration data and regular 'delta' updates to this data will be required from the mastering systems right up to go-live to ensure that CSS remains aligned with the latest RMP and Meter Point data.

The new Retail Energy Location address data item within the CSS is created using current Meter Point address data and with data from a procured premises address data source, beginning the exercise to reconcile high-quality UK premises address database with meter point data. The creation of the Retail Energy Location within the CSS is covered in the product D-6.1 – Data Improvement Address Database Remedy.

Activities undertaken at Stage 1 include:

- Initial CSS data migration;
- Establishment of interface from MPRS and UK Link into CSS;
- Possible Establishment of Comms Hub interface from Smart Metering to CSS (to be examined further – could provide meter pairing data at a premise to support improved address matching and creation of the REL)
- Migration of Meter Point address data (from UK Link, MPRS, supplier and other sources) into CSS;
- Migration of registration data into CSS;
- Procurement and integration of Address Service data; and
- Creation of the Retail Energy Location address data set within CSS.

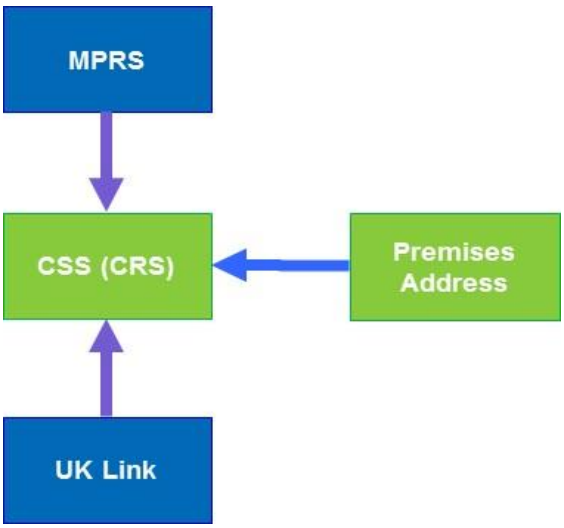

Figure 6 – Transition Stage 1

8.1.3 Transition Stage 2: Interfaces with wider Industry Central Data Systems

At Stage 2, interfaces are introduced to manage data flows out from the CSS to populate MPRS and UK Link, in a production or pre-production (staging) environment. MPRS and UK Link will remain as the master data providers for registration data at this stage. This will allow the establishment and validation of interfaces that will be used when the CSS is the master source for registration data, but without disruption to the legacy switching system.

Further outgoing interfaces from the CSS to ECOES and DES information systems are established, again in a production or pre-production environments. This will allow Retail Energy Location data to be made available from the CSS (which will now be the master source for this data) and can be replicated in other industry data sources, meaning that the benefits of access of this data (such as improved reliability) will be delivered ahead of CSS 'go-live'. The CSS will still not be the master of any data with the exception of the Retail Energy Location, however.

Activities undertaken at and leading into Stage 2:

- Establishment of interfaces from CSS to MPRS and UK Link;
- Establishment of interfaces from CSS to ECOES and DES;
- Establishment of an RDP interface between CSS and DSP (see below); and
- Creation of Retail Energy Location address data (with corresponding feed into ECOES and DES;
- Implementation of any temporary mechanism required for the management of in-flight switches.

Interface between CSS and DSP

It is possible to implement the production build of the Registration Data Provider (RDP) interface between CSS and DSP within Stage 2 or Stage 3. DSP is the central data service operated by DCC to manage the transmission of service requests and data between users and smart meters. The DSP, primarily for the purposes of access control, requires a feed of Registration and Meter Point data from UK Link and MPAS. This is currently captured by the RDP data interface. Under the new Switching Arrangements, the CSS will provide the required data to the DSP.

If the interface is built at Transition Stage 2, the existing RDP production interfaces can either be closed down and replaced with the CSS production interface, or maintained in parallel (with CSS in shadow operation) until 'go-live' at the end of Transition Stage 3. Alternatively, the RDP interface could be maintained as the sole Authorised Provider until consumer go-live, with the CSS becoming the Authorised Provider at this time. Currently, Ofgem's preferred approach is to introduce the DSP RDP interface with CSS at Stage 2.

Note, as below, the SI will be required to develop a detailed Transition approach and plan in respect of the CSS and existing core systems and this will include choreography of the associated data migration aspects as defined in the CSS Data Migration Plan product [7]. Through the procurement of the SI, and subsequent finalisation and preparation of detailed delivery approaches and plans prior to the start of DBT, it is expected that the finalised, detailed, Transition and Data Migration approaches and plans will be agreed.

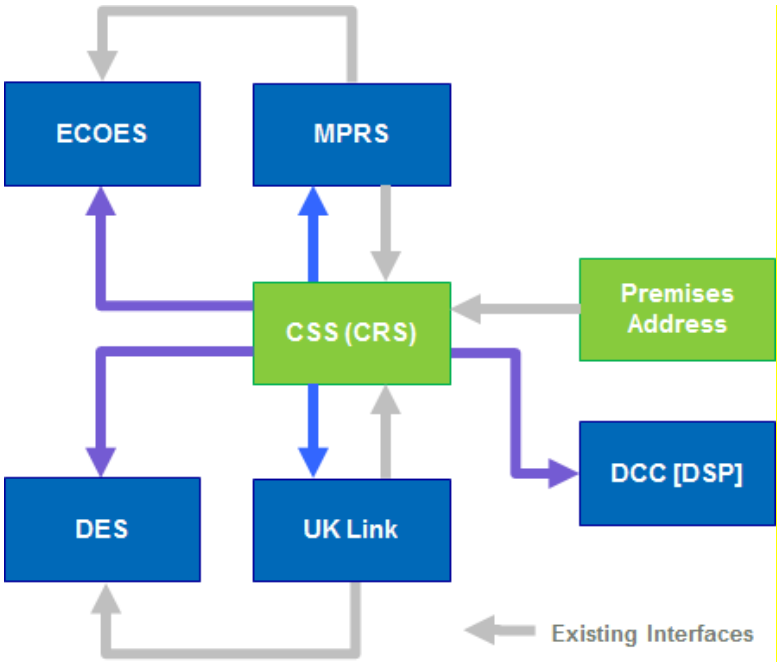

Figure 7 – Transition Stage 2

8.1.4 Transition Stage 3: Market Go-live

At Transition Stage 3, the CSS will become the active registration service, and therefore this stage represents the effective 'go-live' date for suppliers, gas shippers, agents and consumers. At this point consumers will be able to enjoy the benefits of next working day, harmonised gas and electricity switching. At Transition Stage 3 the CSS will become the master source of registration data.

Production interfaces will be established between suppliers and the CSS, and will become fully operational. Ensuring effective interaction between the CSS and the supplier will have been undertaken during Testing (including any Dress Rehearsal), so this stage has the potential to be disruptive. Similarly, production interfaces allowing flows of registration data to agents and gas shippers will become active at this time, the reliability of which will be essential to ensure the effectiveness of settlement and the ongoing customer experience.

Activities undertaken at and leading into Stage 3:

- All interfaces promoted into the production environments
- Establishment of production interfaces between suppliers and the CSS;
- Establishment of production interfaces from CSS to shippers and agents;
- Establishment of RDP interface between CSS and DSP (if not implemented at Stage 2 above);
- Management of in-flight switches by suppliers and existing registration service providers ahead of go-live in line with the agreed process; and
- Retirement of superseded interfaces

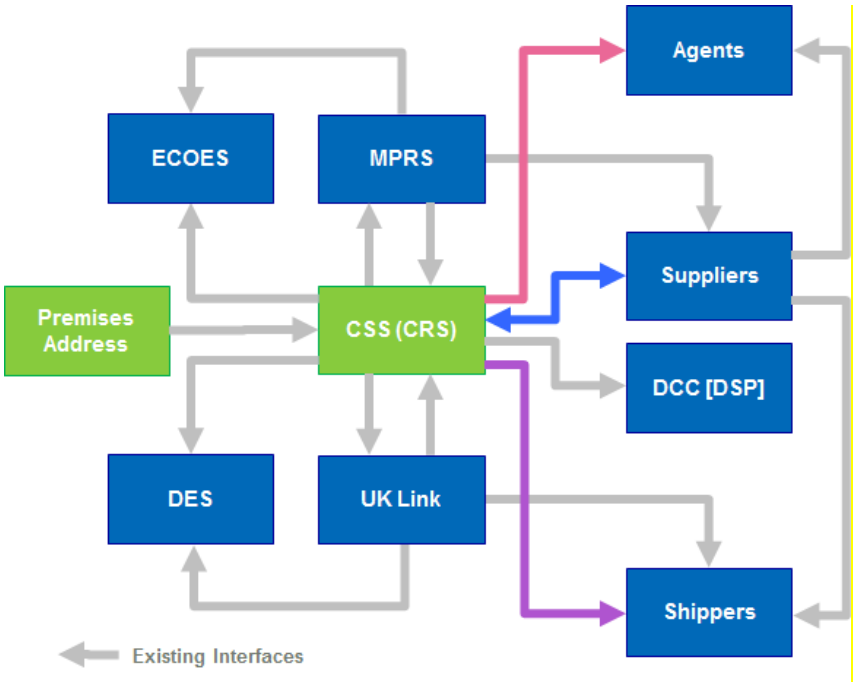

Figure 8 – Transition Stage 3

8.1.5 Entry and Exit Criteria for Transition Stages

Each transition stage (including the preliminary and Post-Implementation stages) will have defined Entry and Exit Criteria which must be monitored and met before proceeding to the next stage. In the case of Transition Stage 3 and the Post-Implementation stage respectively, these criteria will be those for Go-Live decision and the final handover move to normal business operations and governance, respectively.

'Go/No-Go' (GONG) criteria for entry and exit of each stage will be defined and agreed within the Switching Programme governance structure. Assessment of the readiness of market participants to meet entry and exit criteria of transition stages, and the materiality of issues that arise will be informed through various programme governance resources, such as programme assurance, Systems Integrator (SI) (including assessment against the SI's Operational Readiness gate criteria) and end-to-end co-ordination functions, and input from other relevant stakeholders. Programme assurance will be retained until the programme is deemed to be in a 'business as usual' state. Ultimately GONG decisions, including the decision on readiness for transition to BAU will ultimately rest with the programme sponsor (the Ofgem SRO).

Initial entry and exit criteria for transition stages will be established ahead of DBT (although they may be revised subsequently to reflect changing circumstances). The criteria will vary between transition stages, and are likely to increase in number as the stages become more complex. Whilst GONG criteria for moving from the preliminary stage to Transition Stage 1 are likely to be focussed on assessment of whether the relevant components and interfaces have been built and have successfully passed the relevant Test Phases as defined in the E2E Testing Plan, the GONG criteria for entry and exit for the post-implementation stage (in effect, the 'Go-Live' decision and decision to move from a post-implementation period to BAU) will need to ensure that the consumer-facing environment is stable and ready for launch.

An initial assessment of the entry and exit criteria for the post-implementation stage criteria is included in the E2E Post-Implementation Plan and expanded on for CSS in Section 8.2 below.

8.1.6 CSS Transition Approach

In respect of Transition, the SI will be required to:

- Provide advice and input to Ofgem to help define the entry and exit criteria, and Go/No-Go decision criteria as appropriate, for each agreed Transition stage (including final cutover/Go-Live) as defined in the E2E Transition Plan, and other programme milestones as appropriate;
- Manage, deliver and execute the various integration and testing activities across the CSS and other core systems and services aligned to the E2E Transition Plan, enabling market participants to also test their interfaces with these systems in a timely manner to support Transition; and
- Undertake detailed planning and then manage the Transition of CSS components and interfaces and existing central data system and service components into the live environment (including associated data migration and any relevant in-flight switch management) as described by the E2E Transition, E2E Data Migration Plan and CSS Data Migration Plan.

The Core Systems and Service Integration Approach and Plan will be used by the SI to define the detailed approach and plan for migrating data to the CSS from existing central data systems and services and managing transition and cutover activities in respect of CSS and the other core systems. It is expected that the Core Systems and Services Integration Approach will include proposed Entry and Exit criteria for each Transition stage in respect of CSS and the other core systems and services (including the post-implementation stage) for agreement and ratification with programme governance and the programme sponsor (Ofgem) aligned to the Overall Delivery Plan and GONG criteria set for each transition stage at whole programme level.

The Core Systems Integrator (SI) will therefore have overall responsibility for planning, managing and co-ordination of the transition of the CSS and other Core Systems and Services from Design, Build and Test into live operations in line with the E2E Transition Plan, E2E Data Migration Plan and E2E Post-Implementation Plan.

The CSS Provider(s) will be required to support the final approach and plan for core systems Transition as developed by the SI and develop a specific Transition Plan for the CSS showing how CSS Transition will comply with the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and E2E Transition Plan. This should be aligned with the Data Migration aspects of CSS as defined in the CSS Data Migration Plan.

8.1.7 CSS Transition Risks, Assumptions and Dependencies

Risks, Assumptions and Dependencies applicable to Transition for the CSS aligned to the E2E Transition Plan are summarised in the table below.

Transition Risk, Assumption or Dependency	Type	Mitigation and Management Actions
CSS cannot begin Transition at stage 1 until the stage 0 activities have been successfully completed in respect of existing systems	D	SI working with Programme Co-ordinator and Licensed Party Assurance role will ensure clear requirements for stage 0 are placed on all parties and providers SI working with Programme Co-ordinator and Licensed Party Assurance role will ensure progress to plan and ensure completion of Stage 0 transition activities are completed to required quality
The CSS Data Migration Plan will define clear requirement for CSS Data Migration aligned to the defined Transition stages	A	SI to ensure final CSS Data Migration approach and plan is aligned to final detailed Transition approach and plan CSS Provider to confirm CSS Data Migration approach and plan is sufficient to enable CSS Transition to be successfully planned and executed in line with Core Systems and Services Integration Approach and Core Systems and Services Integration Plan
The market-wide release of CSS at the end of Stage 3 represents a significant risk that switching business continuity will be impacted	R	Comprehensive testing of CSS and its interfaces prior to Transition Clear and stringent entry and exit criteria for the transition stages leading up to Go Live with strong assurance and governance to inform associated decision-making Effective Live Rehearsal conducted prior to Go Live CSS Provider to suggest any other ways of mitigating Transition risks at Go-Live
Wider Market Participants and/or existing central data system and service providers will not all be ready at planned Go Live which will delay CSS launch impacting costs of CSS Delivery	R	Effective management of existing parties and providers through Ofgem governance and assurance arrangements SI to manage, co-ordinate and assure CSS and other core system and service providers to ensure consistent progression towards required readiness Consideration of 'going live' without all Licensed Parties being ready (e.g. some suppliers) DCC to consider appropriate commercial and contractual arrangements for CSS Provider(s) to cover delays to CSS launch due to external parties and providers
A more detailed Transition approach and plan in respect of CSS and the other core systems will be developed by the SI prior to the start of DBT (including	A	CSS Provider(s) to develop initial (high level) Transition approach based on information in current E2E Transition Plan as part of tender response Updated CSS Transition approach and plan to be developed prior to start of DBT in line with Core

Transition Risk, Assumption or Dependency	Type	Mitigation and Management Actions
proposed Entry and Exit criteria for each stage)		Systems and Services Integration Approach and Core Systems and Services Integration Plan produced by SI CSS Transition approach and plan to be baselined and aligned to Overall Delivery Plan prior to start of DBT, and then managed under change control

As defined in Section 5.4, the CSS Provider shall capture any Risks, Assumptions and Dependencies related specifically to the Transition of the CSS, as they relate to meeting the requirements defined below, and ensure that these are managed and mitigated as part of the overall RAID Management Plan for CSS Delivery. This shall include consideration of the Risks, Assumptions and Dependencies captured above.

8.1.8 CSS Transition Requirements

The following table of requirements define the minimum set of requirements that the CSS Provider will be required to satisfy in respect of Transition for the CSS. This includes any associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop an appropriate Transition approach and plan for CSS aligned to the E2E Transition Plan. This shall also be aligned to the SI Transition approach and plan which will be included within the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan.	CSS Transition approach and plan documented within the CSS Transition Plan (DID Tx1)	Initial draft with Tender response, updated approach and plan to be baselined prior to contract award and then updated in line with Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and E2E Transition Plan updates	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Transition Plan, SI Transition approach and plan as documented in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Tx1.
2 (New)	The CSS Transition Plan shall align with the CSS Data Migration Plan and the CSS Post-Implementation Plan (DID PI1)	A CSS Data Migration Plan is being produced by DCC which will be updated by the SI in consultation with the CSS Provider(s) prior	As for DID Tx1	Review and assurance by the DCC and SI to ensure alignment with DID Tx1, the CSS Data Migration Plan and DID PI1. To be performed at tender stage, again when products are

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
		to the start of DBT		baselined prior to start of DBT phase, and periodically thereafter.
3 (New)	The CSS Provider shall recommend, as part of its Transition approach and plan, any opportunities to de-risk or otherwise improve the overall Transition approach for the new E2E Switching Arrangements	Part of DID Tx1	As for DID Tx1	Review by the DCC, SI and Prog Coordinator in line with DID Tx1 to consider opportunities recommended for de-risking and improving Transition which could be taken forward into the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and E2E Transition Plan
4 (new)	The CSS Provider will report progress and provide evidence that the entry and exit criteria for each Transition stage, as defined in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan, have been met. Progress reporting format to be defined as part of DID Tx1	Entry and Exit progress and completion reports to be produced prior to each planned entry and exit gate for each Transition stage to provide evidence that CSS relevant criteria have been met	Timings to be finalised in Core Systems and Services Integration Approach and Core Systems and Services Integration Plan, but completion report expected at least one month prior to each defined entry and exit gate for each Transition stage (1 to 3)	DCC and SI to agree format of progress and completion reports for Transition stages, and then assure progress and completion of CSS transition in line with these against defined Entry and Exit criteria for each Transition stage (1 to 3)
5 (New)	The CSS Provider will provide support and resources as required to enable successful execution of the E2E Transition Plan and the Core Systems transition approach and plan as defined in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan	CSS Provider to define how they will support and resource E2E and Core Systems Transition as part of their CSS Transition approach and plan (DID Tx1)	As for DID Tx1	DCC and SI to review and assure CSS Transition Plan to ensure alignment and support of E2E Transition Plan, Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID Tx1

8.2 CSS Post-Implementation Support

The E2E Post-Implementation Plan [22] defines Post-Implementation as a period of enhanced early life support to ensure that the performance and benefits of the new Switching Arrangements are achieved as soon as possible by stabilising the arrangements post go-live and ensuring a managed hand over from the Design, Build and Test (DBT) phase to steady state service management, service operations and governance.

The scope of Post-Implementation as captured in the E2E Post-Implementation Plan includes:

- Prior to the Post-Implementation stage:
  - Understanding where users and supporting resources may experience problems (e.g. based on previous experience or unresolved issues identified during DBT)
  - Setting clear entry criteria for 'go live' operation and exit criteria for end of post-implementation phase (normal business operations)
  - Baseline performance and service levels from current arrangements
- During the Post-Implementation phase:
  - Monitoring and reporting performance of Switching against agreed requirements
  - Working within an agreed governance structure for issue and defect resolution in early life and transition to enduring governance in line with an agreed plan once exit criteria are met
  - Providing appropriate resources to prioritise and resolve issues and defects quickly until stability is achieved
  - Implementing improvements and resolving problems to stabilise new arrangements, including issues carried over from DBT not deemed critical enough to delay launch
  - Managing any changes required to stabilise the service against pre-defined priorities (which may be the same or different to those in DBT)
  - Stabilising the services for the target deployment group/environment as quickly and effectively as possible
  - Ensuring that documentation, training and knowledge base are updated; e.g. with diagnostics, known errors, work-arounds and FAQs

The CSS Provider is required to meet the Post-Implementation requirements laid down in the E2E Post-Implementation Plan, as extracted into this document, including any additional requirements identified.

The Post-Implementation approach and requirements laid down in the E2E Post-Implementation Plan reflect the need to proactively manage this early life period to ensure the required stability and reliability are achieved as quickly as possible with minimal disruption to market arrangements. Furthermore, it assumes that there will not be more than one planned 'operational' release to Users and Consumers of the new E2E Switching Arrangements; hence it is assumed there will be a single cut-over point to live operations, a single transition point to steady state service management and operations, and hence a single defined period of Post-Implementation support following the cut-over to live operations.

As defined in the E2E Integration Plan [19], for Post-Implementation, it is expected that the role of the SI will include support to the planning, co-ordination and management of the Post-Implementation period for the CSS and Core Systems up to the point when the new

E2E Switching Arrangements have been fully handed over to steady state management structures and arrangements.

The E2E Integration Plan also defines 3 key roles of the SI which are relevant to the E2E Post Implementation Plan:

- DBT Services. This covers the provision of a range of services during the DBT phase (e.g. Defect and Change Management, Environment Management, Knowledge Management). During Post-Implementation, it will be important to ensure that relevant information and data (e.g. Defects, Test Data, etc.), resources, knowledge and assets (e.g. Environments) are transferred effectively to steady state service management and operations for CSS and the core systems.

- Operational Readiness Gate. This is a key quality gate for Integration and effectively sets some of the readiness criteria for 'Go-Live' (and informs the associated Go/No-Go decision) where the new E2E Switching Arrangements will be promoted into the live/production environments across all parties and providers. The criteria defined for this Operational Readiness gate will be key to understanding and defining the 'start point' for the Post-Implementation period.

- Operational Transition. This section of the E2E Integration Plan defines the process for transition from DBT to steady state service management and operations and hence is relevant to the E2E Post-Implementation Plan.

The Post-Implementation period will need to work in direct support of the steady state service management and operations approach as defined in the E2E and CSS Service Management Strategy and Approach [24, 34]; providing additional performance monitoring and proactive management of early life reliability and stability issues to supplement the defined steady state arrangements.

As defined in the E2E Transition Plan, the Post-Implementation period will be viewed as a further managed stage beyond the Go-Live/Operational Transition point, with defined Entry and Exit Criteria which must be monitored and met before final hand-over to steady state.

8.2.1 Initial Entry and Exit Criteria for Post-Implementation Period

The Entry Criteria for the start of the Post-Implementation period will mainly be set by the Operational Readiness Gate criteria as defined in the E2E Integration Plan and Section 7.1 above as updated in the SI produced Core Systems and Services Integration Approach together with any additional Go/No-Go (GONG) criteria set by the overall Switching Programme governance. The E2E Post-Implementation Plan includes some generic Entry and Exit Criteria for the Post-Implementation period. These are expanded on below in respect of the CSS.

E2E Entry Criteria	**CSS Entry Criteria**
The E2E switching service, service assets and resources are in place.	The CSS Provider will need to demonstrate that the CSS service, service assets and service resources are in place to meet the criteria defined in the Operational Readiness Gate

Updates to documentation and information are completed and in force; e.g. Licence Conditions, Codes, Contracts, Service Level Agreements (SLA).	Contracts and SLA applicable to steady state operation and management of the CSS are in place and fit-for-purpose. CSS Service Management processes and procedures are in place and have been fully tested
Communications and learning materials are ready to distribute to stakeholders, service management and operations functions and users.	CSS communications and learning materials are ready to distribute to stakeholders, service management and operations functions and users.
All business as usual roles and any enhanced transitional/post-implementation roles are assigned to individuals and organisations.	All CSS business as usual roles and any temporary post-implementation roles are assigned to relevant individuals and organisations.
People and other resources are prepared to operate and use the switching service in normal, emergency and disaster situations.	People and other resources are prepared to operate and use the CSS in normal, emergency and disaster situations in line with defined requirements
People (users, operational support staff, etc.) have access to the information necessary to use, operate and support the switching service.	People (users, operational support staff, etc.) have access to the information necessary to use, operate and support the CSS.
Measurement and reporting systems are established to assess the performance of the switching service for steady state and for the enhanced early life support period.	Measurement and reporting systems are established to assess the performance of the CSS for steady state and for the enhanced early life support period.

E2E Exit Criteria[9]	**CSS Exit Criteria**
Users and consumers can use the switching service effectively and efficiently in line with agreed and defined performance levels (utility and warranty).	Users and consumers can use the CSS effectively and efficiently in line with agreed and defined performance levels (utility and warranty).
Consistent and demonstrable progress is being made towards delivering the expected switching benefits to consumers and other parties.	Not applicable
All parties and providers are committed to manage and operate the service in accordance with the agreed service management model & performance standards (as laid down in licenses and codes).	The CSS Provider can manage and operate the service in accordance with the agreed service management model & performance standards (as laid down in contractual requirements.
Service delivery is managed and controlled across the service provider interfaces and monitored using the defined E2E Service Management model.	Not applicable – E2E Service Management
All service levels and service performance standards (including quality of customer service) are being consistently achieved without unexpected variations.	All service levels and service performance standards applicable to the CSS (including quality of customer service) are being consistently achieved without unexpected variations.
Codes, SLA and contracts are finalised and signed-off by customers and all parties.	Not applicable to CSS Provider(s). But we need to consider suitability Operational Level Agreements
Training & Knowledge has been transferred to parties and providers responsible for enduring maintenance and operation of systems and services.	Training & Knowledge has been transferred to parties and providers responsible for enduring maintenance and operation of the CSS systems and services.
Unexpected variations in service performance are monitored, reported and managed.	Unexpected variations in CSS service performance are being effectively monitored, reported and managed
Service & contractual deliverables are signed off and any residual issues have an agreed resolution plan or have been waived.	All CSS contractual deliverables are signed off and any residual issues have an agreed resolution plan or have been waived.

[9] Note, the final criteria will all need to be measurable and will be proposed by the SI and agreed by Programme Governance and documented in the Core Systems and Services Integration Approach

8.2.2 Performance Monitoring During Post-Implementation

The E2E Post-Implementation Plan requires that any issues (non-conformances) compared to the required functional and non-functional performance should be identified, prioritised and resolved to ensure that the E2E Switching Arrangements achieves the required performance and benefits.

The steady state service management approach [24, 34] will specify how the performance of the E2E Switching Arrangements will to be monitored in steady state, at End to End and individual Service Provider levels. In addition to these 'steady state' service and performance metrics, the CSS Provider shall monitor, or support the monitoring of, as a minimum (but not limited to) the following metrics during the Post-Implementation period:

- Reliability measures; e.g. switches not being fully processed and the causes (e.g. address not found or ambiguous); withdrawn switches and the causes; Erroneous Transfers, etc.;
- Data Quality indicators (compared to required);
- Service Levels (compared to required);
- Security performance (compared to required)
- User complaints;
- Objections volume trends;
- Withdrawal and Annulment volume trends
- Switching volumes and trends (Benefits indicator);
- Average switching times/speeds and distributions;
- Incidents logged, resolution times and trends (including first time fixes and any escalations required to resolve Incidents to understand the effectiveness of knowledge base articles and known issues etc);
- Change Requests;
- Service Requests, trends and completion times; and
- Calls to Service Desks, trends and resolution times.

The SI may additionally propose further metrics to be monitored in the post-implementation period and these will be documented in the Core Systems and Services Integration Plan (Core Systems and Services Integration Plan – see below). The CSS Provider should therefore include any metrics from the Core Systems and Services Integration Plan that are applicable to the CSS.

8.2.3 Post-Implementation Timelines

The timelines for the Post-Implementation period itself have yet to be finalised. The post-implementation period will be deemed to be finalised when the programme has achieved the defined Exit Criteria for the Post-Implementation period through the appropriate

governance mechanism. The CSS Providers should therefore be prepared for this level and duration of activity for an appropriate period.

Irrespective of the overall timelines, the CSS Providers should aim to meet and satisfy the agreed Exit Criteria for CSS as early as possible and submit a Post-Implementation Closure report to provide evidence that all the Exit Criteria have been met, and that all post-implementation requirements defined below have been satisfied.

8.2.4 CSS and Core Systems Post-Implementation Approach

A CSS and Core Systems Integrator (SI) will be appointed to provide a range of services during the DBT Phase to enable the effective Design, Build, Integration, Testing and Transition of the CSS and existing Core Systems (UK Link, MPRS, DES, ECOES and Smart Metering). This will include Operational Transition and Early Life Support to the Post-Implementation period,

The E2E Integration Plan requires the SI to develop a Core Systems and Services Integration Approach and. As part of these, the SI is required to define a detailed approach and plan for Operational Transition and Post-Implementation (Early Life Support) to align with the E2E Post-Implementation Plan.

The SI will be required develop an Operational Transition plan as part of the Core Systems and Services Integration Plan and provide a capability to support the handover of Systems and Service Integration activities from DBT to enduing Business as Usual and Change Management Functions. This will include provision of enhanced early life support to the steady state service management functions as defined in the E2E Post-Implementation Plan.

This will include the transfer of:

- Knowledge and arrangements for provision of enduing support
- Risk & Issues Logs
- Integration Tools
- Outstanding testing issues defects
- Workarounds
- Testing Artefacts including automated test tools, test specifications, test data, test management tool, etc.

8.2.5 CSS Post-Implementation Approach

The E2E Post-Implementation Plan describes three (3) interrelated aspects of Post-Implementation that must be addressed and planned for prior to and during the Post-Implementation Period:

- Early Life Support is concerned with providing proactive, enhanced levels of support to supplement the steady state service management to ensure early life stability and reliability issues are identified and resolved as soon as possible.

- Operational Transition involves the transfer of certain information, assets and services from DBT to the proposed steady state Service Management regime for the new E2E Switching Arrangements.

- Management Transition is concerned with any remaining handover and transfer requirements that must take place successfully within the Post-Implementation; e.g. Governance and Assurance and Knowledge transfer.

Further information can be found in the latest E2E Post-Implementation Plan Section 6.1.

The CSS Provider is required to develop an appropriate Post-Implementation approach and plan for the CSS that addresses these 3 aspects and that meets the specific Post-Implementation requirements as defined below. This CSS Post-Implementation approach and plan should also be fully aligned with the relevant aspects of the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan produced by the SI.

8.2.6 CSS Post-Implementation Risks, Assumptions and Dependencies

The E2E Post-Implementation Plan defines a number of programme/E2E level Risks, Assumptions and Dependencies applicable to the Post-Implementation period. These are included and expanded on below to provide specific Risks, Assumptions and Dependencies applicable to the post-implementation period for the CSS.

Post-Implementation Risk, Assumption or Dependency	Type	Mitigation and Management Actions
Complex, multi-party environment leading to federated, dispersed post-implementation support controlled through a variety of regulatory and commercial instruments with insufficient central visibility and oversight	R	SI and E2E Co-ordination will co-ordinate across DBT activity to ensure continued alignment SI and E2E Co-ordinator will monitor and drive action across of all parties and providers to ensure early life stability SI and E2E Co-ordinator will support Ofgem to ensure effective handover to steady state service management and governance arrangements
High likelihood of early life change requests given complex, changing environment	R	Governance arrangements will need to be proactive with effective change management in early life to evaluate and limit internal and external change requirements
Operation of new, unfamiliar Switching Arrangements within a multi-party environment gives rise to a higher rate of early life issues and problems	R	Effective testing of Operational/Service Management requirements and non-functional requirements prior to release Live Rehearsal Retain knowledge, resources and infrastructure from DBT phase to provide enhanced level of early life support to steady state operations
Single, market-wide release of full functionality means a large service operations and user base	R	Effective testing plus potential use of a Dress Rehearsal

Post-Implementation Risk, Assumption or Dependency	Type	Mitigation and Management Actions
will have to get to grips with the new arrangements all at once		Provide proactive, enhanced early life support utilising DBT structures and resources until stability achieved
Challenging requirement (faster, reliable switching) with challenging timelines means there will be pressure to Go Live before the E2E arrangements have been comprehensively tested	R	Effective, risk-based testing regime, that is protected through the programme Resolution of all major defects identified prior to cutover (part of Go No-Go Decision) Retention of DBT knowledge and capability into early life
Need to achieve stability of new arrangements rapidly due to vital nature of switching for the effective operation of the energy retail market	A	Clear entry/exit criteria agreed for post-implementation period with regular progress monitoring and reporting Provide proactive enhanced early life support
Steady State governance and other support structures may not be able to deal with volume and complexity of early life issues	R	Carry forward governance and related support structures for issues resolution and change management from DBT until 'steady state' achieved Ensure managed transition from these arrangements to normal governance and processes
Data integrity and availability could lead to a source of early life issues which are exacerbated due to faster switching process	R	Effective Data Cleanse & Migration approach as part of Transition Approach and Plan Knowledge of known/typical data issues/errors available Regulatory Transitional period (Ofgem) Retention of knowledge from DBT phase (All)
In-flight switches could be a source of early life issues if not managed effectively	R	Effective in-flight switch management approach put in place as part of Transition Approach and Plan (SI) Exception handling and management put in place
Parties and providers will be sufficiently incentivised to resource and undertake Post-Implementation	A	SI and E2E Co-ordinator to monitor progress and readiness to plan, and to ensure remedial action is taken if progression and readiness are not satisfactory
The new E2E Switching Arrangements will be Transitioned into live operations using a staged approach in line with the E2E Transition Plan, involving a single market-wide release of the full CSS functionality at cut-over. This will require the full functional and non-functional requirement scope	A	E2E Design & Build, Integration and Testing Plans to ensure full functionality is tested prior to start of Transition phases. Given risks inherent in this approach, Integration and Testing phases must provide high confidence that the full E2E arrangements will operate as intended. Continue to monitor and evaluate Transition approach documented in E2E Transition Plan

Post-Implementation Risk, Assumption or Dependency	Type	Mitigation and Management Actions
to be designed, built, integrated and tested prior to the start of Transition.		
There will be a single 'Go Live' release point to E2E Switching Users and hence a single point of Transition to steady state service management and operations	A	Post-Implementation to plan for a single period of Early Life Support and a single Operational Transition to live operations Resource and plan Post-Implementation to deal with higher rate of early life issues.
The E2E DA, Programme Co-ordinator and SI functions/roles, as defined within the overall DBT Governance and Assurance regime, will continue to be in place during the post-implementation period until the post-implementation exit criteria have been met and handover to steady state governance and assurance has taken place.	A	Ofgem and DCC to ensure that these roles are contracted/required up until the agreed exit criteria for Post-Implementation are achieved
The role of the SI as set out in the E2E Integration Plan includes the management, co-ordination and assurance of DBT activities across all core systems and service providers (including the CSS) up to and including the operational transition and associated Post-Implementation (Early Life Support) period	D	SI Requirement Specification for tender pack to clearly set out the role and requirements of the SI in relation to Design, Build, Test, Transition, and Post-Implementation activities so that these are clearly delineated from, and coherent with the requirements to be placed on the CSS Providers (via contract) and the existing central data system and service providers (via regulation or other means)
It is assumed that the Assurance of CSS Post-Implementation activities will be undertaken by DCC (as part of its normal assurance of all contracted CSS Provider activities) plus the SI together with the Core Systems Assurance function.	A	To be confirmed and defined in product D-8.2 (DBT Governance and Assurance plan)
The CSS and Core Systems SI will develop a detailed approach and plan for Operational Transition and Post-Implementation (Early Life Support) covering the CSS and Core Systems	D	In line with the E2E Integration Plan, this is to be documented as part of the Core Systems and Services Integration Approach and Plan to be developed by the SI To be specified in the requirements specification for the SI and provided to the CSS Providers

Post-Implementation Risk, Assumption or Dependency	Type	Mitigation and Management Actions
The SI will be required to provide ongoing support (to the steady state service management model) during the post-implementation period to enable any risks and issues identified in this early life support period to be resolved rapidly including the need for any associated changes required to be tested, deployed and released to achieve stability.	D	Scope of support to be provided by the SI during the Post-Implementation period will be specified in the SI requirements specification and detailed in the SI proposed Core Systems and Services Integration Approach and Core Systems and Services Integration Plan which will be made available to the CSS Providers at the earliest opportunity
Clear entry criteria for 'go live' operation and exit criteria for end of post-implementation phase (normal business operations) should be finalised and agreed by Programme Governance 6 months prior to planned Go Live	D	These will be defined and agreed in the defined timescales and provided to the CSS Provider(s), via the SI as appropriate. An illustrative set of criteria are included in the E2E Post-Implementation Plan which will be further developed by the SI as part of the Core Systems and Services Integration Approach
Baseline performance and service levels from current Switching Arrangements will be made available to the CSS Providers at least 6 months before planned Go Live	D	These will be baselined and provided in the defined timescales and shared with the CSS Provider(s), via the SI as appropriate. As the CSS replaces existing switching system functionality/services in Gas and Electricity, some of the current performance, reliability and service levels will be relevant to CSS
An agreed minimum set of performance metrics to be monitored during Post-Implementation period will be finalised and agreed by Programme Governance and the SI 6 months prior to the planned Go Live date	D	These will be agreed by Ofgem and the E2E Co-ordinator and reflected into the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan produced by the SI. These will be made available to the CSS Providers at the earliest opportunity

As defined in Section 5.4, the CSS Provider shall capture any Risks, Assumptions and Dependencies related specifically to the provision of post-implementation support for the CSS, as they relate to meeting the requirements defined below, and ensure that these are managed and mitigated as part of the overall RAID Management Plan for CSS Delivery. This shall include consideration of the Risks, Assumptions and Dependencies captured above.

8.2.7 CSS Post-Implementation Requirements

The following table of requirements define the minimum set of requirements that the CSS Provider will be required to satisfy in respect of provision of Post-Implementation support for the CSS. This includes and associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop an appropriate Post-Implementation approach for the CSS that addresses Early Life Support, Operational Transition and Management Transition as defined in Section 6.1 of the E2E Post-Implementation Plan. This shall be aligned to the SI Operational Transition and Post-Implementation approach and plan as appropriate.	CSS Post-Implementation approach documented as part of the CSS Post-Implementation Plan (DID PI1)	Initial draft with Tender response, final approach to be finalised at least 6 months prior to Go-Live	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan, SI Operational Transition and Post-Implementation approach and plan as documented in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and DID PI1. Approach needs to demonstrably address analysis results from Requirement 5 below
2 (from 6.7 of the E2E Post-Implementation Plan)	The CSS Provider will develop a detailed Post-Implementation Plan for the CSS that documents how they will satisfy all the Post-Implementation requirements captured in this document, aligned to the E2E Post-Implementation Plan and any associated plans developed by the SI	CSS Post-Implementation Plan document conforming to DID PI1	Initial draft with Tender response, with updated plan to be baselined no later than 6 months prior to Go-Live. Updates via change control thereafter	Review and assurance by DCC and the SI to ensure compliance with E2E Post-Implementation Plan and SI Operational Transition and Post-Implementation plans as documented in the Core Systems and Services Integration Approach and Plan and DID PI1
3 (from 5.4 of E2E Post-Implementation Plan)	The CSS Provider will work within the overall management and reporting framework proposed by the SI and other DBT governance and assurance roles, as part of the programme governance and assurance structure agreed for the DBT phase up to the point of full and final handover to the steady state Governance and Assurance arrangements.	The CSS Post-Implementation Plan (DID PI1) will document how the CSS Provider will provide Post-Implementation as part of the wider Governance & Assurance	In line with timing and frequency of CSS Post-Implementation Plan (DID PI1)	Review and assurance by DCC and the SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan and Core Systems and Services Integration Approach and Plan, and DBT to GONG Governance and Assurance Plan [27]

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
4 (from 5.6 of E2E Post-Implementation Plan)	The CSS Provider will monitor progress against the CSS Post-Implementation Plan and provide periodic status and progress reporting for Post-Implementation activities, made available to the DCC, SI and E2E Programme Co-ordination roles.	This will be in the form of regular status and progress reports conforming to DID PI2	Weekly following Go-Live until the Post-Implementation exit criteria have been met	Review and assurance by DCC and the SI to ensure compliance with E2E Post-Implementation Plan, Core Systems and Services Integration Approach and Plan and DID PI2
5 (from 6.2 (Early Life Support) of the E2E Post-Implementation Plan)	The CSS Provider will analyse and identify where CSS users and supporting resources (such as Service Operations) may experience problems in early life (e.g. based on previous experience or issues identified during DBT). This analysis shall inform the CSS Post-Implementation Approach and Plan	Analysis is to be documented as part of the CSS Post-Implementation Plan (DID PI1)	> 6 months prior to planned Go Live	Review and assurance by DCC and SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan, Core Systems and Services Integration Approach and Plan and DID PI1
6 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will demonstrate how their proposed CSS Post-Implementation Approach and Plan will achieve the defined Entry and Exit Criteria for Post-Implementation	Justification and rationale documented within the CSS Post-Implementation Plan in line with DID PI1	As per DID PI1	Review and assurance by DCC and SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan, Core Systems and Services Integration Approach and Plan and DID PI1
7 6.6 of the E2E Post-Implementation Plan	The CSS Provider will ensure they are adequately resourced to undertake the Post-Implementation activities in order to provide the required levels of Early Life Support and to support the Operational Transition in line with the E2E Post-Implementation Plan and the Core Systems and Services Integration Approach and Plan	Fully resourced plan to be provided as part of the CSS Post-Implementation Plan in accordance with DID PI1	As for DID PI1	Review and assurance by DCC and SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan, Core Systems and Services Integration Approach and Plan and DID PI1
8 6.2 (Early Life Support) of the E2E Post-	The CSS Provider will define and justify the performance metrics to be monitored relevant to the CSS during the Post-Implementation period. As	To be documented in the CSS Post-Implementation Plan (DID PI1)	As for DID PI1	Review and assurance by DCC and the SI for alignment with agreed E2E Post-Implementation Exit

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
Implementation Plan	a minimum, these shall include those agreed in the CSS Provider contract, those for the whole programme and any additional ones defined in the Core Systems and Services Integration Approach and Plan produced by the SI.			Criteria and Performance Metrics agreed in the contract, at programme level, as well as any additional ones required in line with the Core Systems and Services Integration Approach and Plan
9 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will collect data and determine the performance of the CSS against the agreed requirements and metrics and report to enable review against defined contractual requirements	Actual performance against agreed metrics to be provided in the Progress Report in line with DID PI2	As for DID PI2	Review and assurance by DCC and the SI against the agreed Performance Metrics defined at Requirement 8 above in line with DID PI2
10 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will plan for and provide a period of enhanced early life support to ensure that their own processes, systems and service management arrangements are fully operable, stable and reliable within the broader E2E Switching Arrangements and successfully interact with other parts of those arrangements.	CSS Early Life Support approach and plan documented within the CSS Post-Implementation Plan as per DID PI1	As for DID PI1	Review and assurance by DCC and SI to ensure compliance with relevant aspects of E2E Post-Implementation Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID PI1
11 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will identify, plan for and provide appropriate resources, assets and facilities (held over from DBT) to resolve operational and support issues quickly to provide enhanced support to steady state service management and operations until the Post-Implementation exit criteria are met.	The resources, assets and facilities to be held over from DBT shall be documented in the CSS Post-Implementation Plan (DID PI1)	In line with the timings for DID PI1	DCC and SI review and assurance to confirm that areas in DID PI1 are covered in line with the Core Systems and Services Integration Approach and Plan. Where resources, assets and facilities held over are less than those provided during DBT, this needs to be fully justified
12 6.2 (Early Life Support) of the	The CSS Provider will work within an agreed governance structure for issue and incident	The CSS Post-Implementation Plan (DID PI1) will define how	In line with the timings for DID PI1 and DID PI2	DCC and SI review and assurance to confirm that areas in DID PI1 are

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
E2E Post-Implementation Plan	resolution in early life and transition from this structure to normal governance in line with an agreed plan once the exit criteria are met	the CSS Provider will support issue and incident resolution in early life in line with the Core Systems and Services Integration Approach and Plan with status and progress to be reported in the Post-Implementation Progress report (DID PI2)		covered in line with the Core Systems and Services Integration Approach and Plan and that progress is on track as reported vi DID PI2. Early life Issue and Incident resolution is to be fully aligned with the steady state service management approach
13 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will implement any improvements and resolve problems identified as being within its scope of responsibility to resolve to stabilise and improve the new arrangements, including issues carried over from DBT not critical enough to delay Go-Live	The CSS Post-Implementation Plan (DID PI1) will define how the CSS Provider will support resolve problems and implement improvements in early life in line with the Core Systems and Services Integration Approach and Plan with status and progress to be reported in the Post-Implementation Progress report (DID PI2)	In line with the timings for DID PI1 and DID PI2	DCC and SI review and assurance to confirm that areas in DID PI1 are covered in line with the Core Systems and Services Integration Approach and Plan and that progress is on track as reported vi DID PI2. Early life Problem resolution and Continuous Service Improvement is to be fully aligned with the steady state service management approach
14 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will implement any changes required and agreed as being within its scope of responsibility to implement to stabilise the service to meet the defined Exit Criteria	The CSS Post-Implementation Plan (DID PI1) will define how the CSS Provider will support Change Management in early life in line with the Core Systems and Services Integration Approach and Plan with status and progress for any agreed	In line with the timings for DID PI1 and DID PI2	DCC and SI review and assurance to confirm that areas in DID PI1 are covered in line with the Core Systems and Services Integration Approach and Plan and that progress is on track for any agreed changes as reported vi DID PI2. Early life Change Management is to be fully aligned with the steady state

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
		changes identified to be reported in the Post-Implementation Progress report (DID PI2)		service management approach
15 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider will ensure that documentation, training and knowledge bases are updated; e.g. with diagnostics, known errors, work-arounds and FAQs	Status and progress to be reported in the Post-Implementation Progress report (DID PI2) with final status to be included in the Post-Implementation Closure Report (DID PI3)	In line with DID PI2 and DID PI3	Review and assurance by DCC and SI of evidence to show that this information and knowledge has been transferred and used to update relevant aspects of agreed Service Management and Operations approach
16 6.2 (Early Life Support) of the E2E Post-Implementation Plan	The CSS Provider shall provide evidence to verify service stability and confirm that the agreed Post-Implementation Exit Criteria have been met	Post-Implementation Closure Report document conforming to DID PI3	During Post-Implementation period as defined in DID PI3	Review and assurance by DCC, SI and Ofgem that evidence in the Closure Report supports a decision to accept that the CSS Provider has met the Exit Criteria
17 6.2 (Operational Transition) of the E2E Post-Implementation Plan	The CSS Provider will Prepare for Operational Transition in line with the Operational Transition Plan developed by the SI as documented in the Core Systems and Services Integration Approach and Plan	Operational Transition preparation activities are to be included in the CSS Post-Implementation Plan in line with DID PI1	As for DID PI1	Review and assurance by DCC and the SI of proposed preparation activities and plan for alignment with SI Operational Transition Plan in the Core Systems and Services Integration Approach and Plan
18 6.2 (Operational Transition) of the E2E Post-Implementation Plan	The CSS Provider will transfer any outstanding Defects, Service Requests and Change Requests from DBT to the defined steady state service management approach	Handover status and progress to be reported in the Post-Implementation Progress report (DID PI2) with final status to be included in the Post-Implementation Closure Report (DID PI3)	In line with DID PI2 and DID PI3	Review and assurance by DCC and SI of evidence to show that these have been transferred and used to update relevant aspects of agreed Service Management and Operations approach

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
19 6.2 (Operational Transition) of the E2E Post-Implementation Plan	The CSS Provider will transfer any Environments (and any other Assets and Facilities including Test Tools) from DBT to the agreed steady state service owner to support steady state operations	The CSS Environments and other assets and facilities to be transferred to steady state operations shall be documented in the CSS Post-Implementation Plan (DID PI1) Confirmation that this has occurred as planned shall be reported in the Post-Implementation Closure Report (DID PI3)	In line with timings for DID PI1 and DID PI3	DCC and SI review and assurance to confirm that areas in DID PI1 are covered in line with the Core Systems and Services Integration Approach and Plan and that all items identified for transfer have been successfully transferred as reported in DID PI3. Where environments, assets and facilities to be transferred do not include those provided for DBT and Early Life, this needs to be fully justified
20 6.2 (Operational Transition) of the E2E Post-Implementation Plan	The CSS Provider will transfer any DBT Design, Test and Build data and documentation (e.g. Design Specifications, Test Cases. Test Data, Test Specifications, Datum Pack or similar, lessons learned, decision logs, etc.) to the appropriate steady state owner organisation	The CSS DBT data and documentation to be transferred to steady state operations and management shall be identified and documented in the CSS Post-Implementation Plan (DID PI1) Confirmation that this has occurred as planned shall be reported in the Post-Implementation Closure Report (DID PI3)	In line with the timings for DID PI1 and DID PI3	DCC and SI review and assurance to confirm that areas in DID PI1 are covered in line with the Core Systems and Services Integration Approach and Plan and that all items identified for transfer have been successfully transferred as reported in DID PI3. Where any data or documentation produced or utilised in DBT is not to be transferred, this needs to be fully justified
21 6.2 (Operational Transition) of the E2E Post-Implementation Plan	The CSS Provider will confirm that the defined and agreed steady state CSS Service Management and Operation providers can support the CSS effectively and that the CSS Provider responsibilities within the Operational Transition Plan	Post-Implementation Closure Report document conforming to DID PI3	During Post-Implementation period as defined in DID PI3	Review and assurance by DCC, SI and Ofgem that evidence in the Closure Report supports a decision to accept that the CSS Provider has fully achieved the Operational

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	have been fully and successfully completed			Transition requirements
22 7 (Knowledge Transfer) of the E2E Post-Implementation Plan	The CSS Provider will put in place effective knowledge capture arrangements such as Lessons Learned logs, Decision Logs, etc, throughout DBT so this can be transferred and made available to the steady state teams and structures set up for CSS service management and operations	Knowledge Management and Transfer to be included in the CSS Post-Implementation Plan (DID PI1) with progress against this reported in the CSS Post-Implementation Progress Report (DID PI2)	In line with timings in DID PI1 and DID PI2	DCC and SI to review and assure plans and progress against requirements of the E2E Post-Implementation Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID PI1 and monitor progress reported through DID PI2
23 7 (Knowledge Transfer) of the E2E Post-Implementation Plan	The CSS Provider should plan to retain key members of their DBT team for the Post-Implementation period, both to provide the enhanced early life support and to proactively transfer knowledge to the steady state service management and operations personnel. These personnel will ideally be embedded within and/or collocated with the steady state service management and operations team(s)	Knowledge Management and Transfer to be included in the CSS Post-Implementation Plan (DID PI1) with progress against this reported in the CSS Post-Implementation Progress Report (DID PI2)	In line with timings in DID PI1 and DID PI2	DCC and SI to review and assure plans and progress against requirements of the E2E Post-Implementation Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and DID PI1 and monitor progress reported through DID PI2

9 CSS Design Management

The CSS Provider(s) will be accountable for producing design artefacts that are compliant with the baselined E2E design (including Abacus) and baselined CSS Design documents including CSS URS; CSS NFRs; CSS Operational and Service Management design; and CSS Security Approach [9, 10, 11, 13, 31, 32, 33, 34, 35]. A Requirements Traceability Matrix (RTM) must be provided to demonstrate traceability of detailed design documentation and other artefacts to these baselines, along with a Test Traceability Matrix which will be used to inform the design of PIT tests.

The CSS Providers must also demonstrate compliance with design principles and standards (including interface and data standards) that are included with the design baseline, this CSS Delivery Plan and/or which are set out in the service provider contracts.

DCC, in its role as CSS Delivery Manager, will assure and accept the CSS detailed design artefacts and will, supported by the SI, confirm that all aspects of the system are capable of integration. The CSS Delivery Manager will maintain a CSS Design baseline and resolve any design 'disputes' (including differences in interpretation of the E2E Design and CSS Design Documents) unless these impact the wider E2E Switching Arrangements, in which case they will be escalated to Ofgem (via the E2E Programme Co-ordinator acting on its behalf) for resolution.

As described in Section 6, the CSS Providers may adopt a waterfall approach to the development of the detailed design but agile, hybrid waterfall/agile and prototyping design methodologies will not be precluded.

The following table of requirements define the minimum set of requirements that the CSS Provider(s) will be required to satisfy in respect of design management activities. This includes any associated deliverables, which are referenced as defined Deliverable Item Descriptions (DIDs) contained in Appendix B.

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
1 (New)	The CSS Provider will develop and document their approach to management and control of the physical designs and builds of the CSS components they are responsible for	CSS Design Management Approach as per DID DM1	Initial draft to be provided with tender response with updated version agreed and baseline prior to start of DBT phase and maintained under change control thereafter.	Review and assurance by DCC and the SI that Design Management approach meets all requirements in this CSS Delivery Plan and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
2 (New)	The CSS Provider will demonstrate that their physical design complies with any prescribed Design	To be documented as part of CSS Design Management	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
	and Architectural Principles [ref]	Approach as per DID DM1		requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
3 (New)	The CSS Provider will maintain traceability of all relevant design, build and test artefacts to the agreed CSS and E2E design baselines	Requirements Traceability approach to be documented within DID DM1 with populated Requirements Traceability Matrix to be developed and maintained as per DID DM2	As for DID DM1 and DID DM2. Populated RTM to be provided at each agreed CSS design baseline point and agreed quality gates	Review and assurance by DCC and the SI to ensure approach meets requirement in line with DID DM1 and DID DM2 and is aligned with the Core Systems and Services Integration Approach
4 (New)	The CSS Provider's Design Management approach will describe how the CSS Provider will capture and maintain its CSS component design baseline and apply configuration control to the artefacts and documents (configuration items) that comprise this baseline	To be documented as part of CSS Design Management Approach as per DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
5 (New)	The CSS Provider's Design Management approach will describe how the CSS Provider will control and manage the release of design and build standards	To be documented as part of CSS Design Management Approach as per DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
6 (New)	The CSS Provider's Design Management approach will describe how the CSS Provider will log any design issues encountered and escalate these to the CSS Delivery Manager for resolution	To be documented as part of CSS Design Management Approach as per DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core

ID & Traceability	Requirement	Outputs/ Deliverables	Timing & Frequency	Demonstration and Acceptance
				Systems and Service Integration Approach
7 (New)	The CSS Provider's Design Management approach shall describe how they will log and resolve defects during the design, build and test of their CSS component(s) and also how they will support the triage and resolution of defects that occur during integration and testing activities	To be documented as part of CSS Design Management Approach as per DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
8 (New)	The CSS Provider's Design Management approach will describe how the CSS Provider will assess the impact of change proposals on its design baseline; either to enact a defect resolution or implement an externally required change	To be documented as part of CSS Design Management Approach as per DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach
9 (New)	The CSS Provider's Design Management approach will recognise the CSS Delivery Manager as the acceptance authority for all CSS design documentation and artefacts and also agreement of all design baselines and associated changes to these	To be recognised within DID DM1	As for DID DM1	Review and assurance by DCC and the SI that Design Management approach meets this requirement and complies with DID DM1 and is aligned with the Core Systems and Service Integration Approach

Appendix A – Glossary

Acronym / Term	Definition
APM	Association for Project Management
Address Service	A component of the CSS
BAU	Business As Usual
CES	Customer Enquiry Service
CR	Change Request
CSSP	Central Switching Service Provider (there may be one provider for each CSS component, or one provider may provide more than one CSS component)
CSS	Central Switching Service (formed from the integration of all defined CSS components)
Core Systems and Services Integration Approach	Core Systems and Services Integration Approach
Core Systems and Services Integration Plan	Core Systems and Services Integration Plan
DA	Design Authority (also see TDA)
DBT	Design, Build and Test
DCC	Data Communication Company (synonymous with Smart DCC)
DES	Data Enquiry Service
DID	Deliverable Item Description
DLS	Detailed Level Specification (a.k.a. Design Phase)
DNO	Distribution Network Operators

Acronym / Term	Definition
DPP	Design Proving Project
DMT	Data Migration and Transition Testing
DSP	Data Service Provider (part of Smart Metering)
DTN	Data Transfer Network
E2E	End-to-End
E2ET	End-to-End Test
ECOES	Electricity Central On-line Enquiry Service
FAT	Factory Acceptance Test
GDPR	General Data Protection Regulation
IT	Information Technology
ITIL	Information Technology Infrastructure Library
IXN	Information Exchange Network
KT	Knowledge Transfer
MAP	Meter Asset Provider
MSP	Managing Successful Programmes
OT	Operational Testing
PBS	Product Breakdown Structure
PIT	Pre-Integration Test
PMI	Project Management Institute
PMO	Project or Programme Management Office
QA	Quality Assurance

Acronym / Term	Definition
RACI	Responsible, Accountable, Consulted and Informed (a.k.a. Responsibility Assignment Matrix)
RAID	Risks, Assumptions, Issues and Dependencies
REC	Retail Energy Code
RP2a	Reform Package 2a (reliable next-day switching)
RT	Regression Test
RTM	Requirements Traceability Matrix
SI	CSS and Core Systems Integrator
SIT	System Integration Test
SLA	Service Level Agreement
SMIP	Smart Meter Infrastructure Programme
SP	Service Provider
SRO	Senior Responsible Owner
TBD	To Be Determined
TDA	Technical Design Authority (also see DA)
UIT	User Integration Test
WBS	Work Breakdown Structure

Appendix B – Deliverable Item Descriptions (DIDs)

This appendix provides additional definition of the specific deliverables identified as part of the requirements. These are in the form of Deliverable Item Descriptions (DIDs) that are references by the relevant requirements. Depending on the final contracting approach utilised, these DIDs may need further structuring and additional detail when the tended pack is developed.

DID	Title and Content	Timing and Frequency
Del1	Title: CSS Overall Delivery Approach Content: The CSS Overall Delivery Approach will include as a minimum the following information (but not limited to): • An overall description of the Delivery Approach covering the CSS Component(s) the CSS Provider is responsible for. This shall act as a capping document for the individual approaches described in greater detail in DIDs PM1, DB1, Int1, Tx1, PI1 and DM1 • Justification for the proposed CSS Delivery Approach; including demonstrating how this recognises, addresses and mitigates the Risks, Assumptions and Dependencies recorded in the CSS Delivery Plan and in the CSS Provider's own RAID Log • Demonstration that the proposed CSS Delivery Approach is appropriate for the proposed solution design put forward to meet the CSS requirement specifications • Demonstration that the proposed Delivery Approach is aligned with the E2E delivery approaches as captured in the E2E Delivery Plans (D-4.3.x series) • Demonstration that the proposed Delivery Approach is aligned with the CSS Provider's Service Management and Operations approach and solution • Demonstration that the proposed Delivery Approach is aligned with the CSS Provider's Security solution • Demonstration that the proposed Delivery Approach is aligned with the CSS Provider's Data Migration approach and solution put forward to meet the CSS Data Migration Plan requirements	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes prior to planned start of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements.
PM1	Title: CSS Programme Management Approach The content of this deliverable will be aligned to internal DCC Programme Management approach once finalised.	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes prior to planned start

DID	Title and Content	Timing and Frequency
		of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements.
PM2	Title: CSS Quality Assurance Plan Content: The content of this deliverable will be aligned to standard DCC requirements for QA Plans.	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes prior to planned start of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements.
PM3	Title: CSS Asset and Facility Inventory Register Content: The CSS Asset and Facility Register will include as a minimum the following information (but not limited to): • Description of the Asset/Facility • Version/build Number • Identity of organisation providing the Asset/Facility • Identity of organisation that the Asset/Facility has been or shall be provided to, including number of instances • Date upon which the Asset/Facility has been or shall be provided • Identity of person or persons that has or who shall be required to approve the provision of the Asset/Facility • Identity for the point of contact within the CSS Provider and the organisation to whom the Asset/Facility has been or shall be provided, including contact details.	Draft to be provided with Tender Response and baselined prior to start of DBT phase. Register to be maintained live thereafter with monthly updates provided to DCC

DID	Title and Content	Timing and Frequency
PM4	Title: CSS Delivery Project Plan Content: Content: The CSS Delivery Project Plan will include as a minimum the following information (but not limited to): Gantt plan/schedule showing all activities (in line with a defined Work Breakdown Structure WBS), internal and external dependencies and risk mitigation plan The Gantt chart will include resource allocation in line with a defined Organisational Breakdown Structure A defined Product Breakdown Structure and an associated list of all outputs and deliverables due under the contract including timelines for their delivery, required review timelines and responsibilities, as well as associated acceptance criteria for each output and deliverable.	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes prior to planned start of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements.
PM5	Title: CSS Delivery RAID Log Content: The final format of this deliverable will align to agreed DCC and Ofgem RAID Log templates when tender packs are formed.	Draft to be provided with Tender Response, and baselined prior to start of DBT phase. Log to be maintained live thereafter with monthly updates (minimum) provided to DCC
PM6	Title: CSS Delivery Progress Report Content: [further detail to be added]. Standard progress reporting templates will be defined for whole contract (not just Delivery aspects) and so will be aligned to that format once agreed.	Draft format to be included as part of tender and agreed prior to contract award. Progress reporting in line with the agreed format is then required thereafter on at least a monthly basis.
DB1	Title: CSS Design and Build Plan	Draft to be provided with

DID	Title and Content	Timing and Frequency
	Content: The CSS Design and Build Plan will include as a minimum the following information (but not limited to): • A documented and justified approach for CSS Design and Build that satisfies the E2E Design and Build Plan and relevant aspects of the E2E Testing Plan and SI-produced Core Systems and Services Integration Approach and Core Systems and Services Integration Plan. This shall additionally cover module and component level Testing if appropriate noting the need to separately satisfy the CSS Testing requirements and deliverables • A full list of the Risks, Assumptions, Issues and Dependencies (RAID) applicable to CSS Design and Build, and their management and mitigation approaches, to be captured fully in DID PM5 • The activities, milestones and quality gates line with the approach above aligned to the E2E Design and Build Plan and the Core Systems and Services Integration Plan, with fully resourced schedule to be included in DID PM4 • How the CSS Provider will manage and assure its Design and Build activities and performance aligned to the wider Programme Governance and Assurance arrangements, noting this may be documented in DIDs PM1 and PM2 • How the CSS Provider will document (and make visible) its evolving design and associated design decisions, assumptions, etc, including full traceability to the CSS requirements specifications, and maintain this under configuration control throughout DBT and early life until handover to steady state operations • How the CSS Provider's Design and Build approach will provide opportunities for de-risking and otherwise improving the wider Design and Build activities across other parties and providers • How the CSS Provider's Design and Build approach will satisfy the Design and Build principles laid down in the E2E Design and Build Plan • The approach and detailed arrangements for Issue and Defect triage and resolution during Design and Build aligned to contractual requirements and the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan developed by the SI • The Resources, Assets and Facilities to be utilised for Design and Build of the CSS component(s), as logged in DID PM3 • The Outputs and Deliverables from Design and Build of CSS, as fully documented in DID PM4 • Proposed detail structure and content of deliverables DID DB2 and for agreement prior to start of DBT	Tender Response. Updated version to be issued for baselining purposes prior to planned start of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements.

DID	Title and Content	Timing and Frequency
DB2	Title: CSS Design and Build Progress Report Content: The CSS Design and Build Progress Report will include and progress reporting information not covered in DID PM6 including as a minimum the following information (but not limited to): • Work, activities and/or tasks performed during the reporting period (previous, current and next) • Milestones met and/or achieved • Comparison with plan/schedule and remedial actions to address shortfalls • Defects logged and progress towards resolution • Current prioritised Issues, the status of those Issues and the mitigation • Current prioritised Risks, the status of those Risks and the mitigation • Key Assumptions and Dependencies, and their management • Change Request (CR) status	Format to be proposed as part of DID DB1 prior to start of DBT. Reports are required at least monthly from start of DBT to end of design and build activities as detailed on CSS Delivery Project Plan
Int1	Title: CSS Integration and Testing Approach Content: The CSS Integration and Testing approach will include as a minimum the following information (but not limited to): • A recommended Integration and Testing Approach for each defined CSS Component in line with the CSS Solution Architecture, Interface Specifications and User Requirement Specifications • Justification for the recommended approach, including alignment with and coverage of the E2E Integration Plan, E2E Testing Plan, Core Systems and Services Integration Approach and Core Systems and Services Integration Plan • Demonstration of alignment with the CSS Design and Build approach and plan (DID DB1) • Based on the CSS Providers specific physical design for the CSS components(s), the proposed logical order of module testing and integration building up to the full CSS component (even if using Agile approaches)	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes prior to planned start of DBT phase. Updates to reflect any changes thereafter via agreed change control arrangements

DID	Title and Content	Timing and Frequency
	• The approach for test coverage and prioritisation in line with E2E Testing Plan aligned to risk and priority, with further specific detail in DID T1 • Arrangements for internal (self) assurance of CSS integration and testing in line with overall QA Plan (DID PM2), including associated quality gates and review points. Specific detail to be included in DID T1 • CSS Provider integration and testing Organisation and Management (including internal governance) aligned to DCC and SI integration and testing organisation and management. This shall cover Terms of Reference for key individuals and any proposed committees, boards, working groups, etc. • The Integration and Test organisation and management shall include identification of single points of accountability for Test Management and Defect Management • The format and frequency of progress reporting on CSS integration and testing – including but not limited to the test reports defined in DIDs T2, T3 and T4 • The proposed and recommended specific test stages and phases for CSS integration and testing noting the minimum requirements as defined in the E2E Testing Plan as expanded on in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan (fuller detail to be provided in the CSS PIT Plan – DID T1) • The test Environment(s) required for PIT and how these will be supplied and by when – referring to Environment Plan DID T5 • Detailed processes, tools and governance for CSS Provider issues/defect triage and resolution, aligned to wider SI-defined triage and resolution as defined in the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan and Defect Management Plan is separately produced by the SI • Justification for relevant quality gates and entry and exit criteria for each test stage and test phase proposed for CSS integration and testing (aligned to entry and exit criteria and gate criteria in the E2E Integration Plan, E2E Testing Plan and Core Systems and Services Integration Approach if applicable). Specific entry and exit criteria are also to be included in DID T1 • How CSS Provider Integration and Testing approach and resources will support wider core systems and E2E testing stages and phases and positively contribute to successful programme outcomes • Recommended opportunities for using CSS integration and testing to de-risk or otherwise improve wider core systems and E2E integration and testing	

DID	Title and Content	Timing and Frequency
	• Applicable RAID for CSS integration and testing (drawn from overall CSS Delivery RAID Log DID PM5) and demonstration that recommended CSS integration and testing approach is mitigating and managing these • The deliverables and outputs that will be produced as a part of CSS Integration and Testing and any requirements for DCC, SI or wider review and assurance (including timelines) to be undertaken. This shall include as a minimum the deliverables and outputs required by Section 7 of this CSS Delivery Plan	
T1	Title: CSS PIT Plan Content: The CSS PIT Plan will include the following minimum information (but not limited to): • For the Test Phase: ○ Show how Unit and Link Testing will demonstrate compliance with the CSS Technical Specification, including testing of negative and edge cases. ○ Show how CSS System Testing demonstrates compliance with the CSS Interface Specification and with the relevant Functional Specification and relevant non-functional requirements. ○ Test Coverage ○ Define the testing to be carried out, including ▪ Functional (including functional security controls) ▪ Non-Functional to a level appropriate to the capability of the solution, and the features of the test environment being used: • Performance; • Load • Resilience; and • Security. ▪ Development and execution of a Regression Test Pack; and ▪ An Acceptance Test ○ Describe the goods-in testing to be carried out where a sub-system or module is supplied by a third party. This testing	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes 3 months prior to planned start of PIT. Updates to reflect any changes thereafter via agreed change control arrangements.

DID	Title and Content	Timing and Frequency
	process also applies to Test Stubs, test environments and Devices. ○ Follow the process laid out for Quality Gates Reviews ○ Demonstrate compliance with the overall testing timescales. • For each Test Stage ○ Identify the Test Scenarios ○ Define the Generic and Specific Entry and Exit Criteria ○ Design of Test Scripts, and production of Test Specification document and Requirements Traceability Matrix ○ Design and preparation of Test Data ○ Preparation of Test Execution Schedule ○ Test Execution ○ Issue/Defect Management ○ Issue/Defect resolution ○ Release Management ○ Configuration Management ○ Test Progress Reporting (in line with requirements of DIDs T2, T3 and T4) ○ Test Assurance.	
T2	Title: Test Readiness Report Content: The Test Readiness Report will include as a minimum the following information (but not limited to): • Actual number of test scripts written, in progress and not started; • Requirements Traceability Matrix coverage achieved with the test scripts written to date; ○ State of readiness for: ○ Test Data;	Commencing 20 working days prior to the start of test execution for each test stage, and weekly thereafter to the start of text execution

DID	Title and Content	Timing and Frequency
	○ Test Environment; ○ Test Stubs; and ○ Test Team. • Progress against Test Stage Entry Criteria defined in associated Test Plan; • Mitigation/management progress against key Risks, Dependencies and Assumptions identified in the Test Plan; and • Overall RAG status.	
T3	Title: Test Execution Report Content: The Test Execution Report will include as a minimum the following information (but not limited to): • Actual number of test scripts executed vs. planned, cumulative trend; • Actual number of test scripts passed vs. planned, cumulative trend; • Actual number of open and closed test defects vs. planned, cumulative trend; • Actual number of test defects outstanding, split by Severity; • Progress against Test Exit Criteria defined in Test Stage Plan; • Progress against any Work Off Plan from previous Test Stage; • Risk, Dependency and Assumption status; and • Overall RAG status.	Once text execution of a test stage has started, regular progress reports will be provided as detailed in the Test Plan for that test phase/ stage
T4	Title: Test Completion Report Content: The Test Completion Report will include as a minimum the following information (but not limited to): • Overview of testing undertaken; • Actual number of tests run, passed, failed, not run; • Explanation for any tests not run; • Test defect IDs for failed tests; • Number of test defects outstanding (if any), split by Severity;	A draft will be issued 10 working days prior to the planned end of test execution with the final report once test execution has completed

DID	Title and Content	Timing and Frequency
	• Work off Plan for outstanding test defects (if any); • Number and severity of test defects raised; • Specification of test environment used; and • Recommendations for tests to be included in the next Test Stage. For PIT test stages and phase, the completion reports should cover functional, non-functional, regression and acceptance tests	
T5	Title: CSS Environment Management Plan Content: The CSS Environment Management Plan will define the CSS Provider's approach to providing and maintaining the development, test and production environments it needs to meet its contractual requirements. It shall include the following information (but not limited to): • Definition of the environments required to support design build, test, transition and operation of the CSS component(s) for which the CSS provider is responsible • Responsibilities for specification, procurement (if required), set-up and maintenance of the required environments (including associated responsibilities in the form of a RACI chart) • Outline specifications of each environment identified as being required • Timescales for implementation of each environments, demonstrating that they will be in place ready for their required use in line with the DCC programme plan and Ofgem overall programme plan • How the environments will be maintained under configuration control aligned to the builds and releases of the CSS components • Demonstration that the environments meet applicable security requirements	
Tx1	Title: CSS Transition Plan Content: The CSS Transition Plan will define and justify the Transition approach and plan for CSS and include as a minimum the following information (but not limited to): • Recommended CSS Transition approach and plan aligned to E2E Transition Plan and Core Systems and Services Integration Approach and Core Systems and Services Integration Plan • Cover all Transition release activities (pre-deployment planning, deployment and release as defined by ITIL Transition	Draft to be produced as part of tender response and updated to align with Core Systems and Services Integration Approach and Core Systems and Services Integration Plan to be baseline

DID	Title and Content	Timing and Frequency
	• Justification for the recommended approach and plan • Internal (self) assurance of transition activities aligned to CSS Provider QA Plan (DID PM2) • Entry and exit criteria applicable to each Transition stage (1 to 3) as drawn from the Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and E2E Transition Plan • Recommendation of opportunities for de-risking or otherwise improving the core systems and E2E transition outcomes • Applicable RAID for CSS Transition (drawn from overall CSS Delivery RAID Log DID PM5) and demonstration that recommended CSS Transition approach is mitigating and managing these • Demonstration that CSS Transition approach and plan align with the CSS Data Migration Plan • Defined format of progress reports and transition stage gate completion reports (entry/exit)	prior to start of DBT. It is then to be updated as required to maintain alignment and compliance with the E2E Transition Plan, CSS Data Migration Plan, Core Systems and Services Integration Approach, Core Systems and Services Integration Plan and Overall Delivery Plan
PI1	Title: CSS Post Implementation Plan Content: The CSS Post-Implementation Plan will include as a minimum the following information (but not limited to): • A documented and justified approach for CSS Post-Implementation that satisfies the E2E Post-Implementation Plan and relevant aspects of the Core Systems and Services Integration Approach and Core Systems and Services Integration Plan covering: Early Life Support, Operational Transition and Management Transition • An analysis of the issues and problems that may be experienced in early life for CSS and demonstration of how the proposed CSS Post-Implementation approach will mitigate these • A full list of the Risks, Assumptions, Issues and Dependencies (RAID) applicable to CSS Post-Implementation, and their management and mitigation approaches, to be captured fully in DID PM5 • The activities, milestones and quality gates line with the approach above aligned to the E2E Post-Implementation Plan and the Core Systems and Services Integration Plan, with fully resourced schedule to be included in DID PM4 • How the CSS Provider will manage and assure its Post-Implementation activities and performance aligned to the wider Programme Governance and Assurance arrangements, noting this may be documented in DIDs PM1 and PM2	Draft to be provided with Tender Response. Updated version to be issued for baselining purposes no later than 6 months prior to planned Go-Live date. Updates to reflect any changes thereafter via agreed change control arrangements.

DID	Title and Content	Timing and Frequency
	• The CSS performance metrics to be monitored during the Post-Implementation period, and how these supplement the metrics agreed for steady sate service management and operations • How the CSS Provider will provide enhanced support to steady state operations to identify and resolve issues, incidents, problems and service improvements building on Issue and Defect management processes within DBT, aligned to wider Core Systems and E2E incident and issue management. This shall include provision of a separate PIT environment to enable testing of patches to the live system • How the CSS Provider will provide enhanced support to steady state operations to evaluate and implement any changes identified in early life required to stabilise the service and address major issues, incidents and problems • The Resources, Assets and Facilities (as documented in DID PM3) to be Retained for Post-Implementation support in addition to steady state requirements • The Environments, Assets and Facilities (as documented in DID PM3) that will be transferred from DBT to steady state operations and management, including how, when and to who these will be transferred • The Data and Documentation from DBT (as documented in DID PM4) that will be transferred from DBT to steady state operations and management, including how, when and to who these will be transferred • How knowledge built up in DBT will be captured and transferred to steady state operations and management teams, including arrangements for the retention of key personnel for a period beyond Go-Live to help transfer this knowledge • Proposed detail structure and content of deliverables DID PI2 and DID PI3 for agreement prior to start of Post-Implementation period	
PI2	Title: CSS Post-Implementation Progress Reports Content: The CSS Post-Implementation progress reports will include progress reporting information not covered in DID PM6 to cover as a minimum the following information (but not limited to): • Activities/tasks performed during the reporting period (previous, current and next) and resource utilised • Progress against the resourced plan (DID PI1) including progress towards achieving defined Exit criteria for end of Post-Implementation • Progress in handing over to steady state Service Management and Operations	Structure to be defined agreed as part of DID PI1 Weekly submission of fully populated reports from the Go Live point

DID	Title and Content	Timing and Frequency
	• Comparison with plan/schedule and remedial actions to address shortfalls • Progress in updating steady state documentation, training and knowledge bases (e.g. with work-arounds and FAQs) • Progress in handover of identified information and artefacts from DBT – e.g. Environments, Assets, Facilities, Documentation, Test Data, Test Tools, etc) • Early life Defects/Incidents logged and progress towards resolution • Progress in resolving outstanding issues/defects not resolved during and their handover to steady state management and operations • Performance against defined Post-Implementation Metrics agreed (in addition to any steady state Service Management metrics and service levels defined and agreed) • Current prioritised Issues, the status of those Issues and the mitigation • Current prioritised Risks, the status of those Risks and the mitigation • Assumptions and Dependencies, and their management progress • Change Request (CR) status…. • [more to add – check against requirements]	
PI3	Title: CSS Post-Implementation Closure Report Content: The CSS Post-Implementation Closure Report will include as a minimum (but not limited to): • Evidence that the defined and agreed Exit Criteria for the Post-Implementation period in respect of CSS have been satisfied, supported by independent assurance if required • Evidence that all information and artefacts identified in DID PI1 for handover to steady state operations and management have been successfully transferred with confirmation from the receiving person or organisation • Evidence that steady state documentation, training and knowledge bases have been fully updated with DBT information and experience, plus early life • Evidence that any outstanding DBT defects/issues, service requests and change requests have been successfully transferred to steady state with a clear agreement on the way ahead	When evidence has been gathered that supports CSS meeting defined and agreed Exit criteria from post-implementation stage

DID	Title and Content	Timing and Frequency
	• Evidence that steady state service management and operations providers and teams are able to support CSS effectively and that the CSS activities and responsibilities under the Operational Transition Plan within the Core Systems and Services Integration Plan have been satisfied	
DM1	Title: CSS Design Management Approach Content: The CSS Design Management Approach will cover as a minimum the following information (but not limited to): • Describe the overall Design Management approach in respect of the physical design of the CSS component(s) for which the CSS Provider is responsible • Describe how the CSS Provider will provide evidence and demonstrate that their physical design satisfies the Design Principles laid down for the programme • Define configuration items (design, build and test artefacts and documents) that will for part of the CSS Provider(s) proposed baseline and how configuration control will be managed and maintained across these items aligned to defined design baselines, build and release standards • Define how traceability of the CSS Provider's physical design, build and test artefacts to the agreed CSS and E2E design baselines will be managed and maintained. This shall include definition of the format of the Requirements Traceability Matrix (DID DM2) • Define how design issues identified by the CSS Provider will be logged and raised to the CSS Delivery Manager for resolution, included any required or expected response times • Define how defects will be recorded by the CSS Provider in respect of integration and testing of their CSS component(s) and how they will be resolved, including associated prioritisation and response/resolution times • Define how the CSS Provider will support the triage and resolution of defects logged in respect of integration and testing across parties and providers, in line with the Core Systems and Services Integration approach and associated Defect Management Plan developed by the SI • Define how the CSS Provider will assess and evaluate the impact of changes proposed, either as a resolution to a defect of to respond to an external request for change to the agreed design baselines, including associated response times	

DID	Title and Content	Timing and Frequency
	• Define the assurance and acceptance arrangements for each design artefact to ensure CSS DA sign off at the required time by the CSS Delivery Manager	
DM2	Title: CSS Component Requirement Traceability Matrix Content: To be added. The RTM formal and approach for the whole programme is still under development. This deliverable will be aligned to that approach and format once determined.	