Data Communications Company

Services in Development

2019/20 Price Control supplementary document

Date: July 2020

Classification: DCC Public

Version: Redacted

Data Communications Company

Contents

1 SMETS1 Programme

1.1 Purpose, Scope and Structure

1.1.1 Purpose

Background

Under the SMIP Foundation Stage, SMETS1 meters were rolled out by suppliers ahead of the establishment of DCC systems so that customer benefits could be accelerated. SMETS1 meters are the first-generation smart meters which were not designed with the same level of compatibility and interoperability as SMETS2 meters. The main drawback of the approach suppliers took to rolling out SMETS1 meters is that when a consumer changes energy supplier, these meters risk losing their smart functionality and becoming "dumb". Without addressing this issue, the full benefit of early adoption of smart meters will not be realised.

The overall purpose of the SMETS1 Programme is to integrate these meters into the DCC service so that they can be operated in 'smart mode' and maintain their smart functionality.

The technical solution (Feasibility report, IEPFR) was consulted on in 2016 with two key options:

- A Direct to Meter (D2M) solution whereby the DCC effectively communicates with the SMETS1 meter via new software developed specifically for the purpose (IP4).
- A solution that would integrate the existing market framework (SMSOs) (IP5b) into the DCC ecosystem.

Option 2 was considered lower risk as the existing market framework was already operational and had been tested. In May 2017 DCC consulted on a delivery plan for option 2 ("LC13" plan), which was approved by the Government in October 2017. This scheduled the enrolment and adoption of SMETS1 meters into the DCC ecosystem in three operating capability releases – Initial Operating Capability (IOC), Middle (MOC) and Final (FOC) – with each release delivering a capability for a different type of meters that have been installed by energy suppliers.

1.1.2 Scope

Changing Assumptions and Increased Complexity and Scope

As the programme evolved it become apparent that the complexity was greater than initially envisaged by all key stakeholders. Aspects of this complexity included:

- Although considered lower risk (already operational and tested), it became apparent that the chosen architecture was more complex than had been initially appreciated.
- Industry assumptions about how meters behaved did not reflect their behaviour, resulting in significant additional work to understand how they behave.
- Customers needed more implementation time. Customer feedback on the management of meter migration resulted in a broader scope and the requirement for an extended period for development of the approach for transition and migration.

These issues were raised with BEIS as posing a significant risk to delivery and articulated through relevant governance forums with industry and BEIS.

A restructure of the Programme was subsequently carried out in the last quarter of 2018. DCC consulted on a revised LC13 plan with the following milestones:

- IOC at end May 2019 comprising the Aclara, Honeywell Elster and Itron meters currently operated by [REDACTED].
- MOC at end August 2019, comprising the Honeywell Elster meters currently operated by [REDACTED] and the [REDACTED].

- FOC at end October 2019 comprising Landis + Gyr (L+G) meters currently operated by either [REDACTED] SMSO, [REDACTED] or [REDACTED] and, if directed by Government following a consultation in due course, the EDMI meter group.

Joint Industry Plan (JIP) Change Request of DCC's delivery plan for SMETS1 Services – Consultation

The DCC SMETS1 service went live at the end of July 2019 (later than the planned date of May 2019) and migrations of previously dormant meters under the IOC cohort have been progressing, enabling consumers to have their smart services restored. DCC consulted between 25 October 2019 and 20 November 2019[1] on amendments to its SMETS1 Delivery schedule (originally laid out in the JIP). The consultation posed two questions. Firstly, it invited views on the revised timetable for each operational capability. Secondly, it invited views on specific new milestones proposed for firmware development linked to both [REDACTED] and Landis+Gyr. Following the consultation, the proposed changes were accepted into the JIP.

Key planned events and objectives driving activity and cost

At the start of RY19/20, the key objectives (laid out, and consulted on, in the JIP) for the SMETS1 programme were:

1) Deliver the Initial Operating Capability (IOC) by the end of May 2019. This involved delivery of all the capabilities required to migrate and operate Itron, Aclara and Honeywell Elster meters previously managed through the [REACTED] Smart Meter Service Organisation (SMSO) as well as the common platforms required to support all future capabilities. These common platforms include a new Dual Control Organisation (DCO) as well as changes to the existing Data Service Provider (DSP).
2) Deliver a Middle Operating Capability (MOC) by end of September 2019. This involved delivery of all the capabilities required to migrate and operate Honeywell Elster meters previously managed through the [REDACTED] [REDACTED] SMSO as well as [REDACTED] managed through the [REDACTED].
3) Deliver a Final Operating Capability (FOC) by end of December 2019. This involved delivery of all the capabilities required to migrate and operate L+G meters previously managed through SMSOs operated by [REDACTED], [REDACTED] and [REDACTED].
4) Create a Migration Control Centre (MCC) and Early Life Support (ELS) capability to plan, control and facilitate migration of up to 50,000 installations per day. This programme included all the work to create a new operating capability with relevant processes, procedures, tooling and training of new staff to enable smooth migration at volume. This new capability was planned to go live alongside the IOC cohort at end of May 2019.
5) Deliver new testing services described below:
    a) Device and User Systems Testing (DUST) to enable DCC's customers to test operation of migrated devices in a DCC user test environment
    b) Migration Device and User System Testing (MDUST) to enable DCC's customers to test migration of devices in a DCC user test environment
    c) Pending Product Combination Testing (PPCT) to enable DCC's customers to test new versions of firmware for devices that have already migrated
6) Complete remaining Device Model Combination Testing (DMCT) of DMCs not tested during the SIT testing phase for the initial go live.

Customer Engagement during RY19/20

Ensuring we understand what customers want, and delivering outcomes they support, is essential in all DCC's activities. In the context of the SMETS1 Programme, the most directly relevant customers (besides Government and end consumers) are the approximately 80 energy suppliers in GB. Since 2015, DCC has carried out 22 different consultations, covering all major decisions affecting migration

[1] https://www.sms-plc.com/media/4427/dcc-smets1-delivery-plan-consultation-final.pdf

and enrolment. DCC has furthermore carried out over 100 bilateral and multilateral meetings and forums engaging customers in the processes involved, getting insight into customer requirements and working collaboratively to achieve the best outcomes.

Not all suppliers have the same capability, in response DCC has produced simplified information and run sessions to help smaller suppliers understand their obligations. A recent example was the customer event in March 2020 which was held in London where over 100 customers attended as DCC ran through the vital steps to enter testing, complete migration and re smart their meters.

DCC shares some cost information at the quarterly finance updates, however, DCC is unable to share detailed costs or specific commercial terms reached with the DCC supply chain because this could put DCC into breach of contract and this would reduce DCC's commercial leverage to reduce enduring costs. DCC has shared high level costs with energy suppliers in terms of pence per meter per month to build, test and migrate as well as the long-term running costs.

1.1.3 SMETS1 Programme Structure

The figure below shows how the programme was organised during RY19/20, and the key roles within each sub-team.

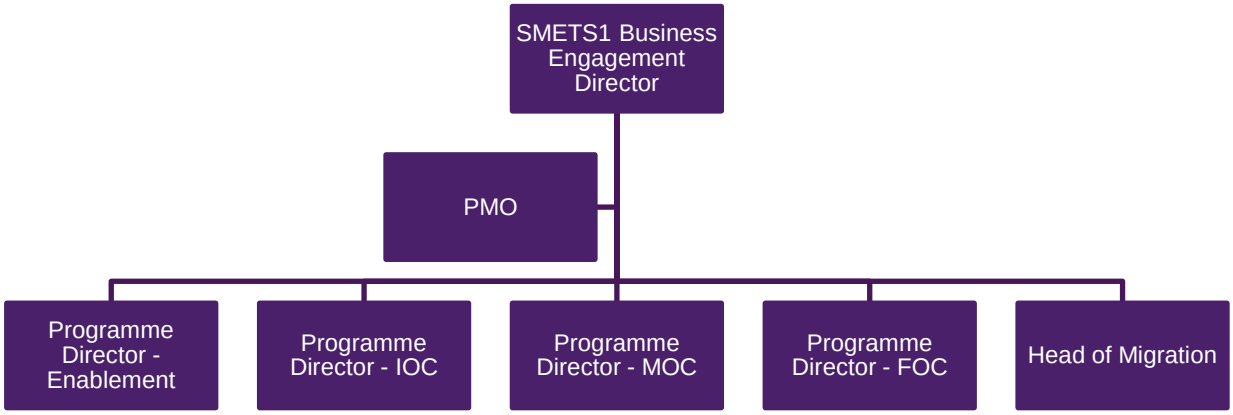


Figure 5: SMETS1 Programme structure

It should be noted that the sub-team structure within the Payroll system (below) does not always match the SMETS1 programme structure illustrated in the figure above. Resources from the different sub-teams are deployed and prioritised across the programme as needed.

Because of the restructuring of the programme this year, the naming conventions for the sub-teams have changed from RY18/19. To help Ofgem track these changes, the table below shows a mapping between years and a description of the sub-teams' role and purpose.

Sub Team structure reported in RY18/19	Current Sub-team RY19/20	Description
SMETS1 Management and Programme Delivery	Service Delivery	The overall purpose of this team is to deliver the Enrolment and Adoption of SMETS1 meters into the DCC in accordance with DCC Licence Conditions, liaising with internal and external stakeholders to ensure all end to end components are in place to enable the safe and efficient migration of meters.
SMETS1 Commercial and Regulation	Commercial and Regulation	**Commercial** Accommodate changes to the Service Providers' contracts for any of the capability releases;

Sub Team structure reported in RY18/19	Current Sub-team RY19/20	Description
		Drive and lead on procurements and negotiations with current and new Service Providers for any of the capability releases; and Complete and review contract signatures for Service Providers' contracts for any of the capability releases. **Regulation** Run consultations as required for other SEC designated documents; Produce Live Services Criteria documentation for go-live and present to SEC Panel and BEIS; and Identify requirements and dependencies for go-live governance including internal DCC governance and external governance.
SMETS1 CTO	Design and Assurance (CTO)	The SMETS1 service introduces new components to DCC's core infrastructure. While this is designed to be 'seamless' to end-customers there is greater complexity in terms of data flows, security, and physical Device Model combinations. The SMETS1 CTO team's primary focus is to deliver a high-level technical design and provide assurance of supplier technical design.
SMETS1 – Test Services and Assurance	Testing	The SMETS1 Test Services and Assurance Team will oversee multiple testing stages for the three different capability releases, incl. Pre-integration Test (PIT); Early Integration Test (EIT); System Integration Testing (SIT); Migration SIT; Business Assurance Testing (BAT); and User Integration Testing (UIT).
SMETS1 Operations	Operations	In terms of readiness for operations, and managing the SMETS1 Service on an ongoing basis, the SMETS1 Operations team's primarily focus and purpose lies in supporting the migration activity as well as establishing an Early Life Support in time for the first capability release. As part of this, a period of internal DCC testing immediately prior to go live – Transition to Operations (TTO) – will take place before each capability release. This will involve business acceptance and operational acceptance testing to ensure that the service can be handed over to operational teams within the DCC and remaining non-functional processes and activities have been verified as being fit-for-purpose.
SMETS1 Security	Security	The primary purpose of the SMETS1 Security team is to produce and finalise the Security Architecture and Risk Assessment for each of the programme's capability releases. This includes security assessing and assuring the integration of all SMETS1 service providers and components.

2 SMETS 1 Internal Costs

2.1 SMETS1 Programme Cost Variances

2.1.1 Variance by GLs in the RIGs

The table below provides a breakdown of incurred and forecasted costs in price control format i.e. mapping costs directly against the price control General Ledger codes (GLs). Payroll costs are justified within the next section. Non payroll costs are explained in the section **Error! Reference source not found.**.

The table below shows an overall payroll variance of £123,000.

Table 1: Variance from the RIGs by GL

	(£m)			RY19/20	RY20/21	RY21/22
Baseline	**Total SMETS1**			**9.778**	**6.828**	**-**
Incurred	**Total SMETS1**			**23.594**	**6.859**	**1.038**
Variance	**Total SMETS1**			**14.176**	**0.032**	**1.038**
	Payroll costs	PR	£m	0.123	(2.931)	0.526
	Non-payroll costs	NP	£m	(0.128)	(0.221)	0.027
	Recruitment	RC	£m	(0.077)	0.045	-
	External services	ES	£m	14.049	2.655	0.324
	IT Services	IT	£m	0.007	-	-
	Internal services	IS		0.137	0.483	0.161
	Office sundry	OS		0.001		
	Accommodation	AC		0.065		

2.1.2 Variance by Sub-Team

The table below shows the payroll variance by sub-team.

In RY19/20, the **Security** and **Service Delivery** sub-teams showed variances that exceed the agreed materiality threshold of £0.15m. In the forecast, both teams also show a material variance for RY20/21. In addition, **Operations** shows a material variance in RY21/22.

The activities and events that are the primary drivers behind these variances are elaborated in the following team sections.

Table 2: Variance Cost by Sub-team

SMETS1 Payroll Costs	RY19/20	RY20/21	RY21/22
Incurred	**9.393**	**3.579**	**0.526**
Variance	**0.123**	**-2.931**	**0.526**
Commercial and Regulation	(0.371)	(0.879)	0.076
Design and Assurance	(0.402)	(0.435)	0.058
Operations	0.080	(1.166)	0.245
Security	0.366	0.161	-
Service Delivery	1.732	0.307	-
Testing	(1.283)	(0.918)	0.147

2.2 Drivers for Variance – Resource

Four out of six sub-teams came in under budget this year on resource costs. The primary driver of resource cost variance within the SMETS1 programme is the Service Delivery sub-team, followed by the Security sub-team. The overall variance is low, with three sub-teams showing good-sized negative variances. Incurred payroll costs are forecast to drop considerably through RY20/21 and RY21/22.

However, as the programme has evolved it has become apparent that the complexity was greater than the entire industry and government initially envisaged. This has led to a programme restructure and strengthened governance, resulting in a need for increased resources in key areas.

2.2.1 Service Delivery

The overall purpose of this team is to deliver the Enrolment and Adoption of SMETS1 meters into the DCC in accordance with DCC Licence Conditions, liaising with internal and external stakeholders to ensure all end-to-end components are in place to enable the safe and efficient migration of meters.

Following the restructure, to meet the increased governance, delivery and testing requirements of the programme there was a demand for the following additional service Delivery roles: Programme Directors and Managers, Project Managers, PMO Managers and Analysts, and Test Assurance Analysts.

Activities driving change in resource in RY19/20

Initial Operating Capability (IOC)

At the start of RY19/20, the IOC was in the process of completing two major test phases: Systems Integration Testing (SIT) which tests that all of the sub-systems provided by suppliers work correctly together in order to provide a fully functional solution to operate migrated meters and Migration Testing which tests the mechanism for securely migrating meters from the SMSO systems to DCC's total solution. A number of unforeseen issues were encountered which drove changes to the plan which resulted in additional costs being incurred, including:

Device Issues found during SIT - DCC found functional defects in the firmware for both Aclara and Honeywell Elster devices. These issues were assessed as part of DCC's Device Issue Resolution Forum (DIRF) and a decision was taken to remove them from SIT on the basis that they could not properly interoperate with DCC's solution. Therefore, plans for SIT testing had to change in order to accommodate additional SIT phases later in the year once fixes for the firmware defects were available. The original plan was based on the assumption that the firmware made available to DCC would be capable of carrying out the minimum required functionality and to that end, the procurement of device firmware was not part of DCC's scope. This resulted in significant amounts of SIT testing and migration testing having to be re-run as well as additional cycles of governance which pushed timelines to the right. This created additional demand for Test Assurance Analysis resource.

SIT testing of all devices did not complete until March 2020. This extended the overall window for IOC SIT by 10 months.

Migration Testing took longer than planned – During testing, DCC encountered a number of unforeseen technical issues with the migration solution related to its reliable and secure operation. Plans were drawn up to delay the go-live first to the end of June and then to the end of July. These revised plans were reviewed with the organisations involved in governance of the release, most notably the Testing Advisory Group (TAG), the Industry Managers Forum (IMF) and the Smart Metering Design Group (SMDG) where changes to the baseline plan were agreed so that DCC could complete its planned testing activities. This drove an extension of DCC programme resources deployed on the IOC programme by about 2 months and incurred additional external spend with DCC's service providers in order to complete an extended SIT phase.

Availability of devices for testing – many of the device models required for testing of IOC are no longer being manufactured and DCC had difficulty sourcing sufficient devices to keep testing going. To this end DCC spent much more time procuring devices and establishing ways that devices could be re-used. This was unavoidable and impossible to mitigate. DCC also set up a device refurbishment capability

with one device manufacturer which was not part of the original plan and drove additional internal and external spend.

IOC Go-live and the start of migrations – DCC completed testing with Itron devices in time for a go-live on 27 July 2019 which enabled a relatively small cohort of dormant Itron devices to be migrated during August. Original plans had included a 'big-bang' approach where all active and dormant Device Model Combinations (DMCs) would be enabled at go-live. In response to concerns raised by Industry and in agreement with the SEC Panel Operations group, DCC adopted a more cautious approach to starting migration using dormant devices only, which limited the risk of any consumer impact as a result of migration and built confidence in the solution. This also drove extension of internal and external resources on the programme and resulted in more cycles of governance to add DMCs to the solution than originally planned. However, we maintain this was the right thing to do to avoid impacting consumers. The following capabilities were identified as necessary and went live at the same time; Migration Control Centre (MCC) and Early Life Support (ELS). These required new roles including: Programme Director and Programme Manager.

Migration issues with Itron devices – during the period immediately after go-live, DCC encountered a small number of issues in relation to the migration of live Itron devices as a result of legacy data supplied to DCC and the Itron firmware. This caused a pause in migrations and drove a detailed root cause analysis of the issues with DCC's supply chain. This further contributed to increased programme costs.

Go-live with Honeywell Elster devices – As mentioned above, Honeywell Elster devices required a firmware upgrade from the version initially tested in SIT. DCC completed an additional cycle of SIT testing during October and November 2019 and went live with Elster devices on 16 December 2019. This drove an increase in internal and external spend as only a single phase of SIT testing was planned for IOC.

Testing of Aclara Devices – DCC received updated firmware for Aclara devices and completed testing of these devices during February and March 2020. As with the re-testing of Elster devices, this additional testing was not part of the original plan and drove a further increase in costs. At the time of writing, further device-related issues are driving additional consultation with industry and are delaying completion of the go-live still further. It is likely that device related issues (i.e. those not in the scope of DCC's supply chain) will have driven 12 months of delay in completing the original scope for IOC.

Change – As a result of lessons learned in user testing and in production, a number of changes to the solution were proposed at the end of 2019. These changes were incorporated into a new release (Core 1.1) which drove additional internal and external spend during RY19/20. New roles required in this area included: Project Manager and Test Assurance Analyst. A summary of the changes is provided below;

- Auxiliary load – changing DCC's solution to mitigate the identified risk of cut-off to consumers with auxiliary load circuits.
- Split supplier IDs – ensuring DCC's solution can accommodate customers that use multiple SEC party IDs.
- File sequencing – changing DCC's solution to remove file sequencing in order to improve migration throughput and solution reliability.
- [REDACTED] roaming – amending DCC's solution to distinguish between SIM-type and [REDACTED] to [REDACTED] roaming.

DMCT analysis more complex than originally assumed – DCC had originally anticipated that DMCT (the process by which additional DMCs are tested and added to the solution) would involve analysis and testing of only a few 10s of DMCs per cohort and would involve only minimal governance. In fact, the IOC dormant cohort alone has over 1800 DMCs which require analysis and potential testing. This could not have been foreseen. This has driven the need for more technical resource to analyse and agree potential firmware upgrade paths. Whilst DCC anticipate that governance will become more straightforward as more cycles of DMC are executed, the set-up and initial execution of the governance activities has been more complex than anticipated. In response to these challenges, DCC has taken the decision to appoint a project team to oversee these activities as opposed to the relatively light touch test assurance activity that was originally planned. New roles included: Programme Director and Project Manager

Middle Operating Capability (MOC)

During the last quarter of 2019, DCC proposed changes to the Joint Industry Plan (JIP) in relation to delivery of remaining milestones. These changes were agreed at the SMDG meeting in December 2019 and the JIP baseline was uplifted accordingly. This had the effect of re-baselining the SMETS1 delivery plan for MOC to the following dates:

- MOC ([REDACTED] Cohort) – from end of September 2019 to 15 March 2020
- MOC ([REDACTED] Cohort) – from end of September 2019 to end of June 2020

The decision to split the delivery of MOC into two releases was taken in order to maximise the number of devices that could be migrated as early as possible. The [REDACTED] cohort went live as planned on 15 March 2020.

Delays to the [REDACTED] cohort were due to DCC's assessment of [REDACTED] readiness to enter SIT according to the original plan agreed with [REDACTED] and industry. DCC and [REDACTED] did meet the revised dates for SIT entry in January 2020 and continue to make good progress towards a go-live now planned for July 2020. This move of dates from September 2019 to June and now July 2020 meant additional costs from extending DCC's programme team (including a new Project manager role) and although some costs were deferred, additional costs of delay with DCC's supply chain were incurred as DCC assessed that it would be more economic and efficient to do additional Early Integration Testing (EIT) ahead of SIT entry in order to reduce risks of additional slip to SIT testing.

Activities driving change in resource in RY20/21

Final Operating Capability (FOC)

During the last quarter of 2019, DCC proposed changes to the Joint Industry Plan (JIP) in relation to delivery of remaining milestones. These changes were agreed at the SMDG meeting in December and the JIP baseline was uplifted accordingly. This had the effect of re-baselining the SMETS1 delivery plan for FOC from end of December 2019 to end of July 2020.

The main driver behind this milestone change was the availability of new firmware from L+G required to commence SIT testing which was re-planned to commence in January 2020. This delay gave us the opportunity to conduct additional testing in the form of EIT in order to try and reduce the risk of issues arising in SIT however, the delay and additional testing resulted in additional internal and external costs. Completion of the additional EIT caused a few weeks delay to the start of SIT for FOC as the defects identified from the additional testing were fixed. Despite the additional EIT phase, during SIT testing in February 2020 a significant issue was discovered in relation to the interoperability of the L+G communications hubs and the [REDACTED] network. These two components had never been designed with the requirement to be interoperable and this has resulted in a need to change the design and re-run migration testing. This will drive a payroll cost variance in RY20/21, though the scale of the variance will be much lower than in RY19/20. In addition, Service Delivery payroll costs are forecast to drop by over a half in RY20/21 relative to RY19/20.

2.2.2 Security

The primary purpose of the SMETS1 Security team is to produce and finalise the Security Architecture and Risk Assessment for each of the programme's capability releases. This includes security assessing and assuring the integration of all SMETS1 service providers and components.

Activities driving change in resource in RY19/20

The demand for Security resource faced a similar set of drivers as described above for Service Delivery resource. As plans faced delays and moved to the right, so the security team and individual resources were extended too. The programme operates without contingency, so any actual materialisation of risk tends to result in the programme extending deadlines. The drivers of change generally resulted in the extension of existing resources but there was also a requirement for a new 0.5 FTE Security Architect for the following reasons

- Firstly, two security issues were identified in devices. One was with a SIT device and required additional testing and security analysis (requiring more Security resource). The other flaw was

found with a device in production. That issue required input from the team to carry out a prolonged root-cause analysis. In addition, migration had to be stopped during the security investigation.

- Secondly, the SEC Panel security sub-committee asked DCC to look at establishing a device security testing capability and service. (Typically, DCC are not normally involved directly in device testing, just interoperability). Due for delivery in RY20/21, DCC allocated resources to it during RY19/20 to conduct the capability analysis, service design and tendering work necessary to get the service in place.

Activities driving change in resource in RY20/21

In RY20/21, the demand for Security resource is likely to face a similar set of drivers as described above for Service Delivery resource. As plans face delays and move to the right, (such as FOC being pushed back) so the security team and individual resources are extended too.

2.2.3 Operations

The SMETS1 Operations team's primary focus and purpose lies in supporting the migration activity as well as establishing an Early Life Support function in time for the first capability release. There is also a period of internal DCC testing immediately prior to go live – Transition to Operations (TTO) – which takes place before each capability release.

Activities driving change in resource in RY20/21

In RY20/21, the demand for Operations resource is likely to face a similar set of drivers as described above for Service Delivery resource. As plans face delays and move to the right, (such as FOC being pushed back) so the Operations team and individual resources are likely to be extended too.

2.3 Drivers for Variance – Non-Resource

2.3.1 Summary

The SMETS1 Programme has had seven procurements over the course of RY19/20 that exceeded the materiality threshold of £150k. A breakdown of the respective procurements is provided below. Accounting for over 50% of the total non-resource variance are the additional resources that were brought in to support the restructure of the Programme i.e. the SMETS1 delivery partner and the SMETS1 executive PMO. Both partners were contracted at the end of 2018 following a clear direction from Government to ensure that the Programme was appropriately resourced in order to meet the tight timescales prescribed by the LC13 plan. Another material cost was the design and build of the Requesting Party for both [REDACTED] and [REDACTED], in line with regulatory requirements as set out in the SEC, notably through the subsidiary document, the SMETS1 Transition and Migration Approach document (TMAD).

We explain each of the material variances below, including why we believe these were the right thing to do to deliver the government's programme aims in an economic and efficient manner.

Table 3: Material variance for External Services in SMETS1

(£m)	2019	2020	2021
Total Incurred External Services	**14.102**	**2.655**	**0.324**
Total Variance External Services	**14.049**	**2.655**	**0.324**
Interop checker[2]	0.140	0.544	0.201
SMETS1 - [REDACTED]	0.891	0.100	-
[REDACTED] enduring services (Global M2M APN Solution)	0.152	-	-
SMETS1 delivery partner - [REDACTED]	7.156	0.359	-
SMETS1 Executive Programme Management Office	0.478	-	-
SMETS1 migration - [REDACTED]	2.004	0.812	0.088
SMETS1 Requesting Party – [REDACTED]	1.741	-	-
SMETS1 support - [REDACTED][3]	0.075	0.615	-
SMETS1 Migration Reporting System	1.135	-	-

The main drivers of the RY19/20 non-resource cost variances stem from the Programme's restructure at the end of 2018 / early 2019 to ensure that the Programme was appropriately resourced with the right skills and expertise across different disciplines, including additional support from an expert PMO. Cost increases have also been driven by the design and build of the technical solutions that will enable the migration of cohorts in both the MOC and FOC.

The sections below provide a description and justification of the material procurements that were concluded and/or extended over the course of the RY19/20. Evidence supporting the course of events associated with these procurements and/or evaluation scores are included as part of the supporting evidence material submitted alongside this submission.

The decision by which a supplier was either procured via a competitive or non-competitive procurement is based on, and in line with, the sourcing approach for SMETS1. Where there are no means to source services and capabilities other than from existing SMETS1 service providers – which is specifically the case for incumbent suppliers – a single source procurement was pursued, and alternative means and commercial levers were used to maximise value for money.

2.3.2 SMETS1 Requesting Party – [REDACTED] and [REDACTED] (Single Source Procurement)

Drivers and Scope of the Procurement

The SMETS1 migration approach prescribes that energy suppliers, via their respective SMSOs, initiate in their capacity of the "Requesting Party" the migration of their devices into the DCC system. Under the existing arrangements, both [REDACTED] and [REDACTED] operate as their own SMSO for the Landis + Gyr meter cohort. In order to enable the migration of this meter cohort under the FOC, technical changes are required to both energy suppliers' SMSO capability. Without these changes it would not be possible to support the migration of these devices onto the [REDACTED] S1SP platform and therefore into the DCC system.

This was a distinct piece of work, following the Government's Go/No-Go decision to award the Landis + Gyr meter cohort to [REDACTED]. The migration requirement to move from incumbent SMSOs to [REDACTED]'s new S1SP solution is a result of that strategy, and [REDACTED] is the only party that can provide the required service to the DCC for their meters. Together [REDACTED] and [REDACTED] have a SMETS1 customer base of circa 5.5m meters of which 4.5m are active and 1m dormant devices.

The Requesting Party functionality is solely required for the duration of the migration process of SMETS1 devices and is embedded within the SEC as a regulatory requirement i.e. via the Transition and

[2] A justification for the associated costs for the Interop checker will be provided as part of RY20/21 price control submission.

[3] A justification for the associated costs for the "SMETS1 support – [REDACTED]" will be provided as part of RY20/21 price control submission.

Migration Approach document (TMAD). Several versions of the TMAD to support the different operating capabilities were consulted on with industry over the course of the past 2 years.

The technical changes that were required involved the:

- Design and Build of the SMSO Migration solution that will produce the required migration data files that will be used to move both suppliers' L+G meters from the [REDACTED] hosting service over to the [REDACTED] S1SP service;
- A contract variation to cover additional scope for PIT testing. Without SMSO support for these test phases, the migration solutions cannot be adequately tested, adding considerable risk to the migration.

Securing Value for Money

Both parties' costs were scrutinised throughout the entire negotiation phase. The result was a similar cost for both parties. It is noted that [REDACTED] have substantially less meters than [REDACTED], however the bulk of the costs are not volume-sensitive, therefore it is logical that they have a similar overall cost to [REDACTED]. As resourcing costs made up the bulk of this cost, a comparison with other DCC providers' day rates for similar roles provided assurance that both [REDACTED] and [REDACTED] rates are competitive. Further, to ensure that costs could be controlled, a payment structure was negotiated around the effective delivery of and proof of evidence of milestones.

A breakdown of the incurred costs for both [REDACTED] and [REDACTED] is provided in the tables below.

Table 4: [REDACTED] Breakdown of Requesting Party costs

[REDACTED]

Table 5: [REDACTED] Breakdown of Requesting Party costs

[REDACTED]

Robust negotiations between DCC and [REDACTED] have ultimately resulted in the final cost being reduced to [REDACTED] from just over [REDACTED]. The negotiation of the design and build cost reduction entailed the following:

- Removal of legal costs of [REDACTED];
- Reduction of allocated project management resource, with [REDACTED] absorbing some of this internally;
- Reduction of day rate pricing by 12% across the board on all resources; and
- Removal of [REDACTED] contingency resource cost.

[REDACTED] initially submitted a cost of [REDACTED] for the migration. This was heavily contested by DCC commercial on basis that [REDACTED] were looking to recover all their internal costs for the Programme over a period of several years. Subsequent negotiations resulted in agreement on very specific elements to be allowed and a total contract value of [REDACTED] to include the extension of SIT and the new FOC go-live date per Industry plan of 5 September. The negotiation of the design and build cost reduction entailed the following:

- Removal of all [REDACTED] costs for enrolment and adoption that are not directly part relevant to delivery of DCC specific requirements
- Removal of margins to [REDACTED] third party costs
- Justification and streamlining of resourcing costs

2.3.3 SMETS1 Migration – [REDACTED] (Single Source Procurement)

Driver for the Procurement

[REDACTED] [REDACTED] is a Smart Meter Systems Operator (SMSO) provider for around 400,000 smart meters within the SMETS1 programmes Middle Operating Capability (MOC) cohort. Procuring SMETS1 migration services from [REDACTED] supports both DCC's obligations and SMETS1 programme objectives.

More specifically, the scope of [REDACTED] contract entails the:

- Design and build phase of the [REDACTED] migration solution.
- Preliminary work to ensure that all meters are appropriately upgraded to the right firmware to enable the migration.
- Project management support during the design and build phase; and
- Enduring service of the solution until the end of the March 2021.

The costs that were incurred over the course of RY19/20 mainly relate to the design and build phase of the solution.

Securing Value for Money

[REDACTED] is an incumbent supplier of SMSO services and without their support the meters for which they provide those services could not be migrated into DCC's systems. Therefore, this procurement was single source, but followed the approach set out in the SMETS1 Sourcing Strategy to deliver value for money. Upon receipt of the initial quote from [REDACTED] for the migration work, DCC undertook the following activities to drive value for money:

- Reviewing the quotation in detail with the supplier to challenge them around their costings and remove those that we believed were unjustifiable e.g. costs for office space;
- Revisiting the scope of the requirements with internal DCC stakeholders to ensure they were adequately balanced against the cost of [REDACTED] providing them e.g. there was no 'gold plating' of requirements; and
- Working through alternative delivery models with [REDACTED] and DCC's internal stakeholders to reduce costs, while still delivering the requirements e.g. changes to [REDACTED]support model for migration.

DCC's efforts in this have resulted in £245k saving against the original quotes for the design and build phase of the migration solution.

Initial price (£m)	Final Price (£m)	Difference (%)
[REDACTED]		**-13.6**

2.3.4 SMETS1 Executive Programme Management Office (EPMO) ([REDACTED]) (Competitive Procurement)

Driver for the Procurement

Over the course of 2018, it became apparent that the complexity of the SMETS1 Programme was much greater than originally envisaged in the initial LC13 delivery plan that was approved by Government in October 2017. Notably, the level of complexity arose from a more complicated design of the SMETS1 service, unanticipated device-specific issues and customers emphasizing the need for more implementation time, as well as the longer lead times that needed to establish the commercial arrangements with the SMETS1 service providers.

These issues were raised collectively with BEIS, as posing a significant risk to delivery, and were also articulated through relevant governance forums with industry as well as Government. As a result, and at the request of Government, DCC undertook a comprehensive restructure of the programme with a revised delivery plan being approved in October 2018. As part of the re-plan, BEIS had sought assurance that DCC was appropriately resourced to deliver. In response, the Programme was restructured and strengthened, and split into sub-Programmes, one for each capability release, plus one for migration. As part of the restructure and the onboarding of additional resources through the delivery partner, it became clear that an expert PMO management service was needed to manage the multiple Programme streams across SMETS1 and support the existing PMO structure. An RFP to procure an Executive Programme Management Office (EPMO) service was issued in early 2019 to provide both high calibre resources for the SMETS1 programme and the wider DCC PMO function. The scope of this procurement was to bring on board resources for the following roles:

- **Head of EPMO** – lead the Executive Programme Management Office and ensure scope is controlled;
- **Planning Lead** – support the development of Programme Plans and create/track the integrated Plan;
- **Programme MI Lead** – Collate sub-Programme reporting and create/maintain Programme MI/Reporting Suite;
- **RAID Manager** – manage and report Programme Level Risks and Issues. Document and maintain Programme Dependencies; and
- **EPMO administrator** – provide administration support for the EPMO.

Securing Value for Money

The procurement of the EPMO for the SMETS1 Programme was done on a competitive basis, with a robust assessment and evaluation of the different bidders against cost and quality. A summary of the procurement evaluation breakdown is set out in the table below.

In response to DCC's challenge, it should be noted that the selected bidder has provided discounted rates compared to their standard rate card in the existing Framework Agreement with DCC. These discounts were based on a 24-month contract; DCC however only committed to a 6-month contract with a cost of [REDACTED] with the option to extend the contract for a further 6 months and up to a total of 24 months after the initial period expired. In addition, DCC managed to secure at no additional cost for the duration of the contract, the use of a PMO IT tool.

Table 6: Procurement Evaluation Breakdown

Executive Programme Management Office	
Number of Bids received	4
Number of Bids shortlisted	1
Strengths of Selected Bidder	Compared to the other bidders in this RFP, the selected bidder showed higher Commercial and Quality weighted scores during the assessment process. The selected bidder showed prior strong performance in managing large scale PMO projects, including also managing and delivering solutions for large and complex IT projects, such as on smart metering. Their prior experience of managing large scale PMO projects meant that they would be more efficient and more self-sufficient than the competing bidders.
Challenge by DCC	The Total Cost of Ownership for the selected bidder pre-discounts was [REDACTED]. The final price was brought down by 5.6% to [REDACTED]. This price was based on a full 24 months-based contract. DCC only committed however to a 6 months contract with a cost of [REDACTED]with the option to extend the contract for a further 6 months and up to a total of 24 months after the initial 6-month period.

2.3.5 SMETS1 Delivery Partner – [REDACTED] (Extension of RY18/19 procurement)

Driver for the Extension of the RY18/19 Procurement

In November 2018, DCC procured temporary resources for the SMETS1 Programme through a delivery partner. It was agreed that due to its complexity and extended scope, the Programme was expected to continue to evolve as capabilities were being delivered, therefore anticipating the need to flex the resource profile as it progresses through the various delivery phases. It also became apparent throughout RY18/19 that the increased volume and complexity of the work predicted in the SMETS1 LC13 plan required a significant level of additional resource. In November 2019, the DCC Board approved funding of approximately [REDACTED] for the procurement of a resource delivery partner. [REDACTED] was awarded the role of resource delivery partner in 2019 via a competitive procurement, and the explanation and justification for this contract was set out in the RY18/19 price control submission to Ofgem.

Under existing arrangements, the delivery partner comprised 36 resources with varying day rates. Funding for these resources expired on 27 September 2019. With the continuation of the programme beyond the existing delivery timelines, DCC needed to ensure that there was sufficient experienced resource available for the duration of the programme. Failure to do so would have resulted in an increased risk to delivery, a view that was shared by BEIS who sought assurance from DCC in 2019 that the Programme was appropriately resourced.

DCC sought and obtained approval from the Board in September 2019 to retain delivery partner resources until May 2020, and to reduce resource levels to 13 in a phased manner by this date. The additional cost for the extension equates to [REDACTED] further to the [REDACTED], previously approved by the Board in November 2018.

Securing Value for Money

In maximising value for money while ensuring that the Programme remains appropriately resourced, DCC carefully assessed a number of options, giving weight to the options that reduced risk, mitigated increasing costs and ensured buy-in from the Programme Directors.4 These options were:

- **Option A:** extend the current delivery partner with same level of resources until May 2020, costed at [REDACTED]. DCC did not recommend this option to the DCC Board.
- **Option B:** replace the existing delivery partner resources with non-Delivery Partner contractors. The expected cost for this would have been [REDACTED] until May 2020. This option meant that there would be no delivery partner resources left in place post September 2019. This would leave a significant gap in resourcing while contractors were being sourced. This option was discounted due to excessive risk to the delivery of the Programme and achievability in the timescales.
- **Option C:** retain the delivery partner resources beyond September 2019, whilst swapping out with non-delivery partner contractors as soon as practically possible. DCC did not recommend this option as it required filling 20 positions whilst retaining 13 critical roles from the delivery partner. The cost of this option was [REDACTED].
- **Option D:** challenge [REDACTED] to look at the existing SMETS1 Programme and recommend improvements and efficiencies and keep the solution at or within the cost of option C.

A fifth option was also explored and involved recompeting the work. This option was however discounted on the basis of achievability in the timescales, loss of continuity and momentum and realisation of any real benefit to the Programme.

DCC recommended to pursue to option D on the basis that it overall reduced the risk of a cliff edge exit and established an agreement to progressively reduce the overall team size. More specifically, the benefits of option D were that it:

[4] The risks and mitigations against each of the options are set out in the September 2019 Board paper – see supporting evidence.

- Retained the insight gained from working within the Programme and challenged [REDACTED] to propose a model where it would operate within a set cost envelope whilst continuing to support the delivery of the Programme and its objectives;
- Reduced cost through a rationalisation of the resource base, a one-off resource credit and offshoring of selected back office functions. In addition, it also facilitated a more efficient delivery model of moving resources between the different operational capability releases.
- Retained critical resources from the delivery partner. These resources were subject to a robust assessment and sign off by [REDACTED] to ensure that only those resources were being retained that were critical to the delivery of the Programme, with the ability of moving them quickly from one cohort to the next.

The table below depicts the cost comparison between the four options assessed.

[REDACTED]

Based on the expected cohort delivery timelines, the delivery partner resources were required until May 2020 at a cost of [REDACTED]. This includes contingency of [REDACTED] in the event of unforeseeable further change. The cost of this preferred option was higher than the least expensive option by [REDACTED] and lower than the most expensive option by [REDACTED].

2.3.6 [REDACTED] enduring services - Global M2M APN Solution (Single Source)

Driver for the Procurement

[REDACTED] are an existing [REDACTED] [REDACTED] UK customer. [REDACTED] have a Global M2M SIM solution and have approximately [REDACTED] Global M2M SIMs in an activated state. The majority of the SIMs, approximately [REDACTED], are deployed as SMETS1 [REDACTED] meters. [REDACTED] have indicated to [REDACTED] that they wish to migrate their first generation SMETS1 meters to the DCC. As a consequence, [REDACTED] have requested that [REDACTED] support them in migrating the Global M2M SIMs to the DCC.

A new production Access Point Name (APN) is therefore required, which will enable data to be sent from the [REDACTED] SMETS1 meters to the DCC systems. The purpose of the contract is for the production APN links to provide enduring connectivity (“fixed links”). This will subsequently replace the interim connectivity (“cloud based”) arrangements that are being implemented for SMETS-1 MOC ‘Go Live’ under the previous PR1033.

Securing Value for Money

The total costs across a three-year period are [REDACTED], as set out in the table below.

Item	Description	Charge (£)
Global M2M APN Solution[5]	Provision of routers, MPLS and Ethernet links Year 1, etherway 100 Mbit/s, etherflow 30 Mbit/s	[REDACTED] – to be paid within thirty (30) days of receipt of invoice.
Development of APN Support Process	Development of APN Support Process to adopt UK incident management process- one off Charge	[REDACTED] (estimated) – to be drawn down on a time and material basis.
Global M2M APN Solution	Provision of routers, MPLS and Ethernet links Year 2, etherway 100 Mbit/s, etherflow 30 Mbit/s	[REDACTED] – such annual charge shall be invoiced to the Customer in monthly instalments, in arrears.
Global M2M APN Solution	Provision of routers, MPLS and Ethernet links Year 3, etherway 100 Mbit/s, etherflow 30 Mbit/s	[REDACTED] - such annual charge shall be invoiced to the Customer in monthly instalments, in arrears.

[5] Incurred in RY19/20

Costs for fixed links were compared to the [REDACTED] contract and are similar in range. It has also been confirmed that these fixed links are not volume sensitive. This contract was run as a single source contract given the nature of the service and the customer-service provider relationship between [REDACTED] and [REDACTED].

2.3.7 SMETS1 Migration Reporting System

Driver for the Procurement

The SMETS 1 Programme commissioned IT and Networks (IT&N) to develop a reporting database to monitor the end to end migration process. The SMETS 1 Migration Reporting System (S1MRS) was specifically commissioned with the purpose of monitoring dashboards and customer reports detailing all migration successes and failures. The S1MRS is vital infrastructure to the migration process. The development of this database was initially covered by the existing contract that DCC holds with Capita IT&N (IT&N). The current contract between DCC & IT&N provides a 9am – 5pm; Monday – Friday support model for the SMETS 2 BIMI database, but this did not include the S1MRS or any Out of Hours (OOH) support for evenings and weekends. The lack of technical support outside of business hours posed a significant risk to the migration activity. In addition, there is also a requirement for installing monitoring and alerting software onto the S1MRS and the mirroring reporting server. This will identify and address risks before they become issues. To note, the SMETS2 BIMI reporting system has missed regulatory reporting obligations during the year, which would have been highlighted if server monitoring and an out of hours support model was in place.

The benefits of the S1MRS can be summarised as follows:

Benefit Type	What Benefit Is Expected	How This Will be Measured
Unplanned downtime on the Migration Reporting System could lead to 50,000 missed migrations per day.	DCC's ability to stay within the LC13 delivery plan is higher.	DCC report to BEIS and Industry on any missed migrations and any unplanned downtime.
Greater accuracy and transparency of the Migration activity.	No defects or incidents raised by DCC's customers	Number of incidents raised against the S1MRS reports
Allows issues to be resolved within the live environment without having to multiple testing environments first. This will improve fix speeds. **There should be minimal or no customer complaints that the reports they received are incorrect or not delivered.**	Minimal unplanned downtime	DCC report to BEIS and Industry on any missed migrations and any unplanned downtime.
Current BIMI support budget will be absorbed into	Cost avoidance of £7,341.77 per month.	DCC Finance will remove line item off monthly IT&N Billing Schedule

Table 7: S1MRS Benefits

The figure below provides a high-level overview of the migration solution landscape and depicts the criticality of the S1MRS.

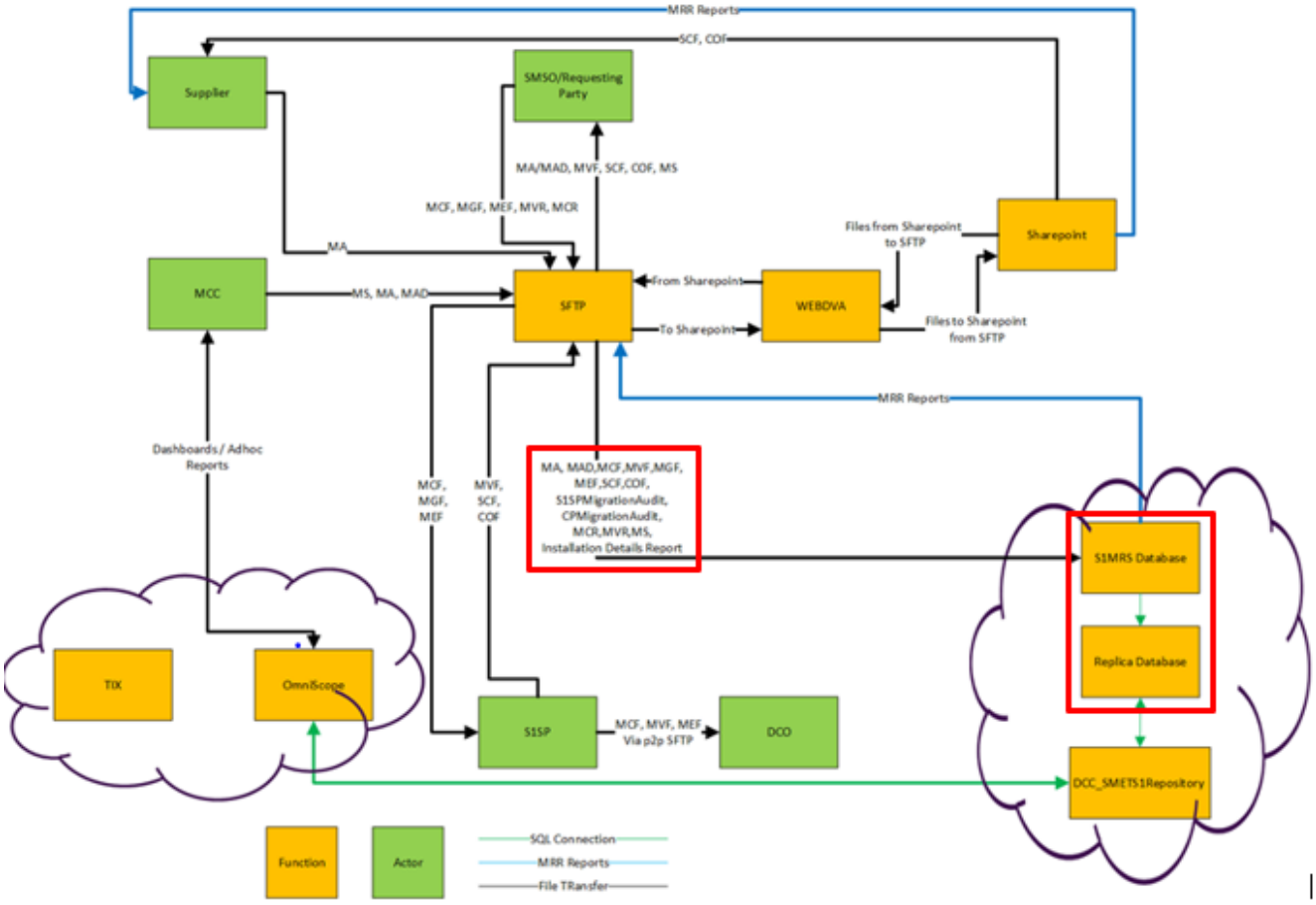


Figure 1: Overview of the Migration Solution highlighting role of S1MRS

Securing Value for Money

To ensure that value for money was being secured, we explored the following options for the S1MRS:

- **Option 0 – Do Nothing**: This solution was seen as highly risky as there is a possibility that the DCC Migration Control Centre (MCC) could lose visibility of the whole migration solution if an issue arose;
- **Option 1 – Full 24 x 7 Support:** Capita IT&N was the preferred vendor for this support model. IT&N have developed all the code base and logic within the database and have a clear understanding of potential issues from their experience with the SMETS 2 BIMI Database. IT&N will be able to use the resources which developed the design and code and can easily transfer that knowledge to other IT&N resources. Using IT&N would be the quickest way to implement this support model and provide the least risk to the programme as they have developed the solution. A Change Request, CR1158, has been raised with IT&N to provide this support. IT&N have returned their initial impact assessment with costs circa [REDACTED] for 6 months cover. However, IT&N have advised DCC that currently they are unable to fulfil this request due to lack of resources with the required skills.
- **Option 2 – Support 9am – 10pm & weekends:** Support BIMI & S1MRS from 9am – 10pm Monday to Friday providing out of hours support on a shift basis from 5pm – 10pm and at weekends (9am – 10pm) given 24 hrs notice. This support model would ensure cover during

migrations, which should occur between 5pm – 10pm; Monday – Friday, with the option to add additional support over weekends, given a predefined notice period. This model also ensures that cover is available for longer periods to help resolve any issues. This could be a way for DCC to reduce costs, but it does carry risk. With this model there would have been a risk that resources were not available for weekend cover if there are late changes to proposed plans, even if the notice is given within the required timeframe. This could then have an impact on migration timelines.

- **Option 3 – Support 9am – 5pm, on call 5pm – 10pm & weekends:** Support BIMI & S1MRS from 9am – 5pm Monday to Friday and provide out of hours support on a on call basis from 5pm – 10pm and at weekends (9am – 10pm) given 24 hrs notice. Implement an 'On-call' support model where resources are on standby evenings and weekends. This model carried the same risk as Option 2 with the added risk that resources could start to breach the European Working Time Directive. This could mean DCC are paying twice for the same resource.

Option 2 was selected as the preferred solution. It ensures that there is resource cover whilst most of the migration activity is taking place in case any defects are raised in the Production environment. This option is also deemed to deliver the best value for money.

3 SMETS1 External Costs

Under current market arrangements, five Smart Meter Service Operators (SMSOs)6 serve over 80 energy suppliers with six different brands7 of meters, supported by four different CSPs. The complexity of the SMETS1 Programme stems from establishing a single interface and system that will enable interoperability in all circumstances. The solution provides important shared benefits for industry and consumers, particularly the ability for all SMETS1 customers to maintain their smart services following a decision to switch supplier.

The SMETS1 solution incorporates a range of existing SMETS1 Service providers, along with new service providers, to enable a service that allows all DCC Users to communicate with all enrolled SMETS1 meters. Over the course of RY18/19, DCC procured the vast majority of the SMETS1 services that underpin the SMETS1 solution. The procurement of these services and the onboarding of the associated service providers were explained and justified as part of last year's price control submission.

Over the course of RY19/20, the Programme has made significant progress, notably in delivering the first stages of the IOC, with the start of the migration taking place in August 2019, and the continued development and implementation of the infrastructure that will support the MOC and FOC. During the year, we have also concluded the commercial arrangements with SMETS1 service providers for the provision of the remaining services that underpin the SMETS1 solution. In the sections below we provide an overview of the procurement of the SMETS1 service providers that were contracted over the course of the RY19/20 together with a brief overview of the SMETS1 supply chain model; as well as an overview of the project costs that were raised during the year to either complete and/or implement specific elements of the design of the solution, as well as to support and enable the migration.

3.1 A Summary of the External Costs across the RY19/20

Over the course of RY19/20, DCC has incurred a total of approximately £351m in external costs. A breakdown of the external costs can be summarised as follows:

Programs	(£m)
SMETS2	280.251
SMETS1	62.357
Switching	8.745

[6] [REDACTED], MDS and EDMI
[7] Honeywell Elster, Aclara, Itron and Landis + Gyr, Secure and EDMI

In respect of the SMETS1 Programme, the drivers for the variances are primarily:

- Enduring costs for the two new SMETS1 CSPs ([REDACTED] and [REDACTED]) plus running costs for the DCO [REDACTED];
- Change and Project Requests seeking extended cover for the development and implementation of:
  - The different testing phases due to the delay on IOC, MOC and FOC; and
  - Build and Operation of the Commissioning Party, which is a critical SMETS1 component to support the migration phases.

3.2 DCC's Commercial Approach to Procuring SMETS1 Service Providers

DCC recognised the negotiations would be very challenging since it had little commercial leverage over incumbent providers. The SMETS1 solution is heavily reliant on the provision of services by existing SMETS1 Service providers. DCC devised a strategy with a range of negotiating techniques and commercial levers to achieve value for money for consumers.

For example, throughout the design phase of the Programme and the procurement of the SMETS1 Service Providers (S1SPs) during RY18/19, DCC was able to apply competitive pressure by developing in parallel two competing design options, of which one option involved DCC offering the integration of SMETS1 meters to energy suppliers directly and therefore replacing the role of the existing service providers. In anticipation of the Government making a decision on these options[8], DCC was able to create a competitive environment that has shifted the delivery time and costs down on existing SMSOs.

For services that were procured over the course of RY19/20, DCC was able to secure value for money for its customers through other means, for example by comparing unit prices and/or trading away service credits for greater data usage. Over the entire course of the Programme, a net benefit to industry of £450m saving was negotiated for the procurement of the SMETS1 services during the RY19/20.

Finally, it should be noted that throughout the commercial negotiations, DCC sought to apply internal and independent reviews before concluding on an agreement. For example, contracts were independently reviewed by DCC Commercial and Legal team members who were not part of the contract negotiation team. These reviews were always complemented by 'black hat' meetings prior to contract signature to test the robustness of the contractual, financial and operational elements of the contracts, and therefore ensure that any residual risks were at an acceptable level.

3.3 SMETS1 Supply Chain – Procuring the remaining services of the SMETS1 Design

The SMETS1 service design remains predicated on the concept of three capability releases deployed sequentially, with periods of platform stabilisation built in to mitigate the risks associated with a large volume of change. The service incorporates a range of existing SMETS1 service providers, along with new service providers, to enable a service whereby all DCC Users are able to communicate with all enrolled SMETS1 meters.

For ease of reading, the tables and figure below provide a summary of the different components that make up the design of the SMETS1 service together with an overview of the SMETS1 supply chain model. It also summarises the components of the service that were procured over the course of the year opposed to what was procured last year.

[8] BEIS go/no-go decision was made in 2018.

System Component	Description
Data Service Provider (DSP)	**Amendments are being introduced to the existing DSP framework to accommodate SMETS1 device validation and routing rules.**
SMETS1 Service Provider (S1SP)	Provide the service that translates the DCC format service requests into a format that SMETS1 meters can understand. S1SPs perform in effect an upgraded instance of SMSOs.
SMETS1 Communications Service Provider (S1CSP)	DCC will be utilising the S1SP network to communicate with, and control, the SIM in each communication hub. S1CSPs will support this communication function.
DCO (Dual Control Organisation)	A newly established component that enhances the security arrangements of the SMETS1 solution. It prevents the S1SP from being compromised and mass meter attack.
Commissioning Party (CP)	A newly established component that applies only during the migration of SMETS1 Devices into DCC. The Commissioning Party is performed by DCC to enable Smart Metering Systems that have been successfully migrated to DCC to be set up as "Commissioned". DCC is providing this capability as an alternative to an Active Supplier having to undertake these commission steps.

Table 8: An overview of the SMETS1 System Components

A high-level summary of the SMETS1 service providers that have been signed to date is set out in the table below. The service providers that were contracted over the course of RY19/20 are shaded in pink in the table below.

Service Provider	System Component	Description	Price Control (RY)
[REDACTED]	**S1SP - IOC**	Amendments were introduced to the existing DSP framework to accommodate the enrolment of the Aclara, Honeywell Elster and Itron meters currently operated by [REDACTED]. Upgrades to the system have either already been initiated or are yet due to be raised through several CRs and/or PRs.	RY18/19
[REDACTED]	**S1SP - MOC**	Commercial arrangements – SDA and enduring – were put in place with the [REDACTED] to develop and support the S1SP capability for this meter cohort.	RY18/19
[REDACTED]	**S1SP - FOC**	Commercial arrangements – SDA and enduring – were put in place with [REDACTED] to develop and support the S1SP capability for the Landis + Gyr (L+G) meter cohort. A contract was put in place with [REDACTED] to act as the Application, Network, and Security Operations (ANSO) service provider and support the communication with Landis + Gyr devices and [REDACTED] comms hubs.	RY18/19
[REDACTED]	**DCO**	The DCO enhances the security arrangements for SMETS1 devices. It is designed to help detect if an S1SP is compromised and prevent mass meter attack through the use of anomaly monitoring and cryptography. Together with the associated ANSO service operated by	RY18/19
[REDACTED] (SDA contract only)			

Service Provider	System Component	Description	Price Control (RY)
[REDACTED] (Variation to SDA + Enduring contract)	**DCO**	[REDACTED], [REDACTED] performs the function of the DCO. SDA and enduring arrangements were set up with [REDACTED] and [REDACTED].	RY19/20
[REDACTED]	**S1CSP**	Commercial arrangements were concluded with [REDACTED] to support the communication service for the SMETS1 SIMs being provided by [REDACTED].	RY19/20
[REDACTED]	**S1CSP**	Commercial arrangements were concluded with [REDACTED] to support the communication service for the SMETS1 SIMs being provided by [REDACTED].	RY19/20

Table 8: SMETS1 Service Providers contracted during RY19/20

The following sections provide an overview of the procurement of the additional SMETS1 Fundamental Service Providers that were contracted over the course of RY19/20, followed by the project costs that were raised during the year to either complete and/or implement specific elements of the design of the solution, as well as to support and enable the migration.

3.3.1 [REDACTED] – DCO (Enduring Contract and Variations to the Software Development Contract)

Drivers and Scope

As part of our RY18/19 price control submission, we justified the scope and costs that were associated with [REDACTED]development agreement i.e. for the development of the Dual Control Organisation (DCO) core service and the production of the interface technical specifications that will enable third parties to develop connectivity with the core DCO.

Due to the delays of the SMETS1 delivery timescales, the RY18/19 **Software Development Agreement** (SDA) has been subject to the following variations:

- Additional out of hours support to support IOC System Integration Testing (SIT) and new GSME (Gas Meter) requirement for IOC ([REDACTED);
- Movement of the LC13 timelines and additional effort required to complete DCO Development for MOC [REDACTED]; and
- Movement of the LC13 timelines and additional effort required to complete DCO Development for FOC [REDACTED].

A contract for the enduring support services was however signed with [REDACTED] in RY19/20 for the provision of the DCO Enduring services for IOC, MOC and FOC to commence from IOC go live to the end of October 2021. These services include the support and maintenance of the infrastructure, hardware/software licences and a Service Management Capability (Tools, Process and People) to support both the Commissioning Party (CP) and the DCO for the duration of the contract. The DCO authenticates messages that are sent to SMETS1 devices to protect the SMETS1 design from any form of security threat. The CP configures the Data Services Provider (DSP) to be able to operate SMETS1 devices that have been enrolled into the DCC Total System. The DCO and the CP have been jointly developed by [REDACTED] and [REDACTED] and will be hosted and managed by [REDACTED] (with additional support from [REDACTED]).

Value for Money

The contract with [REDACTED] for the provision of the enduring support services for the DCO was negotiated as part of the combined enduring running costs for both the DCO as well as the SMETS1 Commissioning Party (CP). [REDACTED] submitted an initial quote for the work in May 2019 with a provisional price of [REDACTED]. Following a number of negotiation rounds focusing on the breakdown

of [REDACTED] quoted charges, DCC eventually managed to bring down the asking price to [REDACTED]. This price was however based on the assumption of the IOC go-live date in May 2019. Given that IOC went live at the end of July 2019, a variation was raised to the agreed price, adding a further [REDACTED] and bringing the total price to just under [REDACTED]. The final agreement for the enduring services was agreed in July 2019 and resulted in a final negotiated saving (cost avoidance) of £2.1m compared to the original price provided.

Cost Avoiding Value	Original Price	Current Price	Saving %
[REDACTED]	[REDACTED]	Enduring Agreement: [REDACTED]	**-25.3%**
		IOC Go Live Variation: [REDACTED]	
		Total: [REDACTED]	

Table 9: Cost Breakdown [REDACTED] Enduing Services for DCO and CP

In terms of the contract costs that specifically relate to the DCO, it should be noted that when setting up the enduring support service, [REDACTED] looked at this as an overall fixed cost support package driven by a defect management team that is responsible for responding to incidents from both DCO and CP. Over time it is expected that there will be differing peaks for both the CP and the DCO, with, for example, more CP-related activity during the migration period as opposed to more DCO-related incidents occurring around the launch of the different operating capabilities. Based on the overall value of the respective DCO and CP SDA budgets, we estimate that a reasonable split of the cost for the enduring services is in the range of 90% / 10% for the DCO and CP respectively.

3.3.2 [REDACTED] – SMETS1 CSP (S1CSP)

Drivers and Scope

[REDACTED] is the largest incumbent provider of SMETS1 CSP services in Great Britain, supporting an estimated 5.5m SIMs in 9m meters for [REDACTED] [REDACTED], [REDACTED] [REDACTED] and [REDACTED]. Each of the legacy contracts between [REDACTED] and the respective suppliers has different terms including: Tariffs; Data Capacity; Coverage and Availability; SLA's; Service Credits, and Service Desk location. Negotiations between DCC and [REDACTED] have heavily focused on harmonising these terms into a single contract in order to achieve economies of scale and value for money. A unified contract with [REDACTED] was signed in May 2019 for a period of 10 years, with an estimated whole life cost of [REDACTED], and with a first break clause scheduled on 31 October 2021.

Value for Money

The [REDACTED] whole life cost is within our overall SMETS1 projected cost of [REDACTED] and has been included in the BEIS Cost Benefit Analysis which informed the SMETS1 Go/No Go decision early 2018.

Given [REDACTED] SIMs account for 65% of all SMETS1 meters, DCC has had very little leverage throughout the negotiation phase. In addition, the signing of the contract with [REDACTED] was a condition precedent of moving into Enduring contracts with [REDACTED] Instant Energy (IE) and [REDACTED], leaving DCC with a limited amount of time to complete the commercial negotiations without this materially impacting the Programme's delivery timelines. Notwithstanding these circumstances, DCC has managed to significantly improve the commercial position previously negotiated by industry. In total, net commercial savings have been achieved, totaling £36.85m made up of negotiated price savings of £22m together with a doubling of data allocation with an estimated added value of £18m, of which service credits were traded with a value of £3.15m. Whilst service credit clauses were traded for greater data capacity, DCC retains the right to sue for damage in connection with breaches of the agreement with [REDACTED].

More specifically, DCC has managed to successfully achieve the following:

- Reduction to the current Weighted Average cost from [REDACTED] per SIM/Month to [REDACTED] with an estimated saving of £18m over the whole life cost.
- A standard data bundle of 1.5MB per SIM per month representing an additional 0.9MB for NP, 0.75MB for [REDACTED] and 0.50MB for [REDACTED]. We estimate the equivalent value to be [REDACTED] over the whole life of the contract.
- The risk of data coverage charges is further mitigated by the optional adoption of higher data tariffs of 2.5MB ([REDACTED] per SIM/Month) and 3.5MB ([REDACTED] per SIM/Month). These tariffs would be used to lower the cost impact of Firmware upgrades, for example. DCC agreed with [REDACTED] that it would proactively issue an early warning if data usage is predicted to be above 1.5MB per month.
- Data is aggregated on a 6-month rolling basis for the life of the contract allowing DCC to spread data usage across all SIMs, so reducing the impact of periodic high data usage.
- Conformity of the Service Desk onto [REDACTED] standard service augmented by additional service reporting and security management support and reporting services.
- Conformity of SLA's on to [REDACTED]'s standard.

During the negotiations, [REDACTED] however indicated their intention to 'Sunset' their 2G Network in 2025, and not to honour the draft agreement end date with the DCC (2031) nor the end date of their negotiated contracts with [REDACTED] and [REDACTED](2029). The current contract end date with [REDACTED] is 2025.

This process could have 'orphaned' up to 10.21m SMETS1 Meters earlier than the end of their economic useful life. Together with the intervention of the Crown Rep and BEIS, DCC managed to seek a way forward, which resulted in [REDACTED] agreeing to honour the current contractual end date of 2029 for the 2 Cohorts ([REDACTED] and NP) and 2025 for the [REDACTED] cohort. In respect of the service for the [REDACTED] cohort for the period covering 2026 – 2029, [REDACTED] agreed to use their best endeavours to find a cost neutral solution. This is an important extended commitment by [REDACTED] as costs are likely to increase if another 2G Network needs to be used. [REDACTED] indicated that they would minimise the increase to pass through cost from the alternative network.

During the negotiation phase, [REDACTED] equally indicated that it might 'sunset' its 2G network at some future point in time and would charge [REDACTED] an additional 20p/SIM per month for the use of its network. Initially, it was estimated that 200k [REDACTED] SIMs are reliant on the [REDACTED] network. Based on that estimate, [REDACTED] agreed to accept the financial implication of the additional charge, which amounted to [REDACTED]. New data however revealed that approximately 1.1m [REDACTED] SIMs were considered dependent on the [REDACTED] network. As a result, DCC pursued a renegotiation of [REDACTED] contribution to the costs of the first 1.1m SIMs up to 31 October 2021. The terms for accessing the [REDACTED]network was agreed as follows:

- [REDACTED] less [REDACTED] Contribution [REDACTED];
- A minimum order value per month of 800,000 SIMs;
- A maximum data capacity usage of 10MB per SIM per month; and
- A re-negotiation of the deal between [REDACTED] and [REDACTED]after 2024.

In terms of the minimum order value and the maximum data capacity, we note that these are not considered to be factors that will impact on the deal as the values are within the tolerances we have assumed. [REDACTED] will manage the inventory of SIMs such that a maximum of 1.1m SIMs can access the [REDACTED]network. Indications from conversations with Centrica and [REDACTED], who own over 90% of the [REDACTED] SIMs, is that this number will be adequate. Our best estimate is that the number of SIMs will be in the region of 0.8m-1.0m.

3.3.3 [REDACTED] – SMETS1 CSP (S1CSP)

Drivers and Scope

The initial scope of the SMETS1 Programme included the Elster Honeywell meter cohort, which was originally managed by the [REDACTED] [REDACTED] SMSO on behalf of Eon. The decision however by [REDACTED] to exit the SMETS1 market has meant that DCC is required to migrate the [REDACTED] cohort of circa 385k Elster Honeywell meters to another service provider within the SMETS1 framework. Following a competitive procurement, [REDACTED] has been successful and selected to take up the role of S1SP for this cohort.

Our commercial strategy for the SMETS1 Programme, as set out in our feasibility report of 2016, foresaw that we would establish direct commercial terms with [REDACTED] to support CSP services to [REDACTED] meters. CSP services are a fundamental part of the SMETS1 supply chain. [REDACTED] SIMs are already in the [REDACTED] meters and it would require a visit from an engineer to either replace the meter and/or the SIM. The cost of replacing the full 385k cohort would cost [REDACTED], assuming an approximate unit cost of [REDACTED] for installing a SMETS2 device. Replacing the SIMs would be less expensive but still more than the cost of the preferred option of contracting with [REDACTED] (estimated at [REDACTED] over a 12-year period). Following a detailed assessment of the costs involved, the replacement of meters and/or SIMs were not considered as viable alternative options.

The contract was signed for an initial 8-year period with break clauses in October 20219, October 2024 and October 2027. DCC can extend the contract for a further 4 years in annual increments to 2032. A breakdown of the financing of this contract over the course of its contract term is set out in Annex 3 the RIGs.

Value for Money

Final costs are broken down into mobile and service wrap charges as well as per annum, for the first two years and across the entire 12 years contract.

[REDACTED]

Table 10: Unit Pricing Mobile and Warp Service charges

Mobile costs reflect the price of data usage through the SIMs during the lifetime of the contract. [REDACTED] are providing DCC with the same unit pricing from their contract with [REDACTED]. As such, our customers will be no worse off than before the migration. Value for money is demonstrated, because we are contracting [REDACTED] for 12 years at today's market rate.

A comparison of the main commercial terms between [REDACTED] and [REDACTED] shows the following.

[REDACTED]

Table 11: Unit Pricing Mobile and Warp Service charges

Actual monthly costs for mobile services will depend on how much data is used. Analysing the last 12 months of operating history, costs have grown from [REDACTED] per month in Sept 2018 to [REDACTED] in Sept 2019, with an annual cost of [REDACTED]. This growth is exclusively driven by 26k additional meters in service growing from 359k to 385k over the same period. Extrapolating a full year's cost from the Sept 2019 figures (the month with the highest meter numbers) shows a forecast annual cost of [REDACTED]. In terms of data usage, we note that whilst DCC has secured a data threshold of 0.83MB per meter, at no point over the last 20 months has average meter usage exceeded that threshold.

In terms of the provision of an enhanced account management function, DCC has sought assurances that the service meets an acceptable performance level. The yearly cost of this service is based on

[9] This break clause aligns with similar break clauses negotiated throughout the SMETS1 ecosystem to coincide with the end of the current DSP contract

FTEs and additional services, bringing the total fixed cost to [REDACTED] per annum, or [REDACTED] over a 12-year term.

3.4 SMETS1 Change Request and Project Request Costs

The table below provides a brief summary of the material SMETS1 CRs and PRs that were justified over the course of the past two years together with an indication as to which phase of the Programme they relate to, as well as what and who has driven them. The materiality threshold for external SMETS1 costs is the same as for non-SMETS1 i.e. [REDACTED]. The CRs/PRs highlighted in pink are of a material value and were completed over the course of RY19/20; they are justified in more detail further below. The other CRs/PRs were justified in previous price control submissions.

A proportion of the project costs that were signed off over the course of RY19/20 are generally due to the delay of the Programme and relate to the extension of activities that were instructed under previous CRs and PRs; other CRs and PRs however served the purpose of completing the requirements that are captured in previously agreed contracts but that were de-scoped from those contracts at the time, often for time critical and Programme delivery purposes.

A breakdown of the costs of each CR/PR and how they are being financed across different RYs is set out in the supplementary schedules of the RIGs.

CR Ref #	Description	Service Providers Affected	Driver	Justified in RY
Design				
CR250	Covered indicative pricing and timescales to enable BEIS' decision on the feasibility of options set out in the IEPFR.	[REDACTED]	DCC-BEIS (IEPFR)	17/18
PR049	Covered the High-Level Designs (HLD) that were needed to size and scope work and allow S1SPs to develop and price the work.	[REDACTED]	DCC-BEIS (IEPFR)	17/18
PR050	Covered the HLDs for wider DSP application updates, updates to DUIS and MMC documentation, an HLD for new cloud environments as well as effort to develop an outline scope and plan for System Integration Testing (SIT).	[REDACTED]	DCC-BEIS (IEPFR)	17/18
Build and Test				
IOC				
PR052	Covered the implementation and test of the design developed under PR050 and the build of a subset of DSP environment enhancements.	[REDACTED]	DCC-BEIS (LC13 plan)	17/18
PR065	Covered SIT activities related to the Initial Operating Capability (IOC) as well as the build of the remaining scope of the environments not covered under PR052.	[REDACTED]	DCC-BEIS (LC13 plan)	17/18
PR1017 PR1001 PR1004	PR1017 extended IOC setup phase up to the end of May 2019. Covers a continuation of SIT activity after the end of August 2018 which was the period of cover requested by DCC under PR065. PR1017 was the overarching PR for the re-plan with PR1001 and PR1004 sitting underneath it.	[REDACTED]	BEIS - LC13 re-plan 2018	18/19
	PR1001 covered implementation and SIT of the DSP SMETS1 migration solution.	[REDACTED]	BEIS - LC13 re-plan 2018	18/19

	PR1004 covered SMETS1 IOC Transition to Operations (UTS and TTO)	[REDACTED]	BEIS - LC13 re-plan 2018	18/19
PR1020	Covered the extended SI services for the delivery of IOC, to accommodate the delay to the revised LC13 timescales in 2018.	[REDACTED]	BEIS - LC13 re-plan 2018	18/19
PR1106	Covers uplifts to PR1001, PR1004 and PR1017 for the extension of activities beyond May 2019 go-live, as a result of the delay in IOC go-live from May to July 2019.	[REDACTED]	BEIS - JIP adjustment LC13 plan	19/20
PR1125	Covers extended SIT activities for the period not covered by PR1106 i.e. between Aug and Oct 2019.	[REDACTED]	BEIS - JIP adjustment LC13 plan	19/20
MOC				
PR1047	Covers the preparation and subsequent execution, of MOC integration testing and, thereafter, the implementation of the MOC solution into live operation.	[REDACTED]	DCC-BEIS (LC13 plan v.1.0)	19/20
CR1119	Covers the execution of SIT for MOC for the period up to September 2019.	[REDACTED]	DCC-BEIS (LC13 plan)	
PR1119	Covers the extended Systems Integrator activities to support the revised go-live target of [REDACTED] in March 2020 and Secure in June 2020. PR1047 covered these activities up to September 2019.	[REDACTED]	BEIS - JIP adjustments LC13 re-plan 2019	19/20
FOC				
PR1045	Covers the preparation and subsequent execution, of FOC integration testing and, thereafter, the implementation of the FOC solution into live operation.	[REDACTED]	DCC-BEIS (LC13 plan)	19/20
CR1106	Covers the procurement of [REDACTED] licences that will allow [REDACTED] to fulfil the mandate of a fully managed hosting service to DCC for FOC (ANSO contract)	[REDACTED]	DCC-BEIS (LC13 plan)	19/20
CR1134	Covers [REDACTED] Enduring Support from FOC Service Period Commencement Date	[REDACTED]	DCC-BEIS (LC13 plan)	19/20
CR1218	Covers the extension of [REDACTED] resources to support the build and implementation of the FOC. The extension was in direct response to the revised LC13 timescales, postponing the assumed go-live date for FOC to the end of July 2020.	[REDACTED]	DCC-BEIS (LC13 re-plan)	19/20
DCO				
PR1160	Covers Time and Material costs for the extension to the required development and support team resources for the DCO FOC programme from December 2019 up to July 2020 Go-Live.	[REDACTED]	BEIS – JIP adjustments LC13 re-plan 2019	19/20
PR1067	Covers upgrades to the design of the DCO to support FOC. PR1067 is an extension of PR1052	[REDACTED]	DCC-BEIS (LC13 plan)	19/20

PR1124	PR1124 was raised to avoid contention and delays to test progress. It proposed to that effect that a separate environment was created to enable SMETS1 FOC testing to proceed in parallel with November 2019 testing. The request for a C-Stream environment was proposed by DCC CTO, following an Environments review with the SMETS1 and November 2019 programme teams.	[REDACTED]	DCC	19/20
Migration				
IOC				
PR1059	Covers the development of the Commissioning Party (CP) infrastructure.	[REDACTED]	DCC-BEIS (LC13 plan)	19/20
CR1168	Covers updates to ANSO Agreement to provide for Commissioning Party activities to facilitate the migration for IOC.	[REDACTED]	DCC-BEIS (LC13 plan)	19/20
PR1145	Covers extended services to support Migration Solution Testing following the split of IOC go-live into 2 phases i.e. in July and Sep 2019 to respectively release dormant and active meters.	[REDACTED]	BEIS – JIP adjustments LC13 re-plan 2019	19/20

Table 12: Breakdown of CRs and PRs by RY and Service Provider

3.4.1 Build and Test – IOC

3.4.1.1 [REDACTED] – PR1106 (Revised IOC Go-Live Date)

Drivers and Scope

PR1106 covers uplifts to PR1001, PR1004 and PR1017 for the extension of activities extension beyond May 2019 go-live, as a result of the delay in IOC go-live from May to July 2019.

Both PR1017 and PR1001 assumed that SIT activities would complete by the end of May 2019, in line with the agreed LC13 delivery plan. However, IOC SIT activity did not ramp up as originally planned, and additional tests were requested as a result of updates to the regulatory documents supporting the approaches for transition and migration as well as migration testing. These updates did not fall within the scope of PR1017 and PR1001. As a result, SIT activity was extended to the revised IOC Go Live date at the end of July 2019, requiring extended SIT resources and associated SIT support functions to log, assign, track, investigate and resolve any identified issues. The delay in go live also meant that Transition to Operations (TTO) activities, as documented in DSP's PR1004 were not completed in line within the previously agreed timescales.

The diagram below illustrates how PR1106 extended the major streams of SMETS1 IOC activities (shown in blue). The majority of activities were assumed to complete by the end of July 2019 with the exception of some TTO activities.

ID	Major Scope Activity Item	May-19	Jun-19	Jul-19	Aug-19 & Sep-19
1	SMETS1 IOC Programme Management, Assurance and Operations	PR1004	PR1106	PR1106	
2	SMETS1 IOC Transition to Operations	PR1004	PR1106	PR1106	PR1106
3	SMETS1 IOC SIT	PR1106	PR1106	PR1106	
4	SMETS IOC SIT Support	Uplifts PR1001	PR1106	PR1106	
5	SMETS1 IOC UTS	PR1004	PR1106	PR1106	
6	SMETS1 EIT Support	PR1106	PR1106	PR1106	
7	SMETS1 EIT AWS	PR1017	PR1106	PR1106	
8	SMETST1 IOC Infrastructure and pre-go live Infra Support	PR1017	PR1106	PR1106	
9	SMETS1 Additional Service User Simulators		PR1106		

Securing Value for Money

The SoW for PR1106 proposed a maximum price of [REDACTED]for the period May to September 2019. Monthly milestones were added to PR1106 to enable payments to be financed. The PR1106 milestones are achieved by the production and agreement of monthly trackers and summary billing reports for the preceding month produced by DSP and provided to the DCC by the 10th working day in the prevailing month. The monthly trackers and summary billing report include the effort expended (including name and role type) and, where relevant, materials procured. The monthly trackers enabled the costs to be challenged and ensured that costs were allocated to the correct Project Requests. Separately a review of all SMETS1 infrastructure items and costs was carried out to ensure accuracy and completeness for the purpose of updating the Asset Register. PR1106 payments were financed in September 2019, March 2020. Final costs were [REDACTED] against the forecast of [REDACTED]. [REDACTED]. the table below provides a breakdown of the costs for PR1106.

Table 13: Breakdown of CRs and PRs by RY and Service Provider

[REDACTED]

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW received	SOWA signed
PR1106	14/06/2020	14/06/2020	24/09/2019

Table 14: Change process for PR1106

3.4.1.2 [REDACTED] – PR1125 (Extended SIT for IOC)

Drivers and Scope

The revised Go-Live date for IOC at the end of July 2019 was challenged by meter and device technical issues in the testing environment, which prevented successful migration and thus caused a delay to the completion of testing for Itron and Elster DMCs. PR1106 initially provided cover for migration SIT until the end of July 2019. PR1125 covers for the extended SIT activities for the period that was not covered by PR1106 i.e. between Aug and Oct 2019. The following activities fall within the scope of PR1125:

- Integration and integration support activities (SIT)
- IOC Active/Mixed Itron's (EMST2) testing and pre-DMCT testing in SIT-B;
- SMETS1 PST post IOC Go Live confidence testing in SIT-A;
- SIT work off testing.
- Extended availability of the Early Integration Test environment and associated support;
- Programme Management, Programme Assurance and Programme Operations to support the above activities.

The diagram below illustrates how PR1125 extended the major streams of SMETS1 IOC activities (shown in yellow), to be completed by 31 October 2019.

ID	Major Scope Activity Item	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19
1	SMETS1 IOC Programme Management, Assurance and Operations	PR1004	PR1106	PR1106	PR1125 %	PR1125 %	PR1125 %
2	SMETS1 IOC Transition to Operations	PR1004	PR1106	PR1106	PR1106		
3	SMETS1 IOC SIT	PR1106	PR1106	PR1106	PR1125	PR1125	PR1125
4	SMETS1 IOC SIT Support	Uplifts PR1001	PR1106	PR1106	PR1125 %	PR1125 %	PR1125 %
5	SMETS1 IOC UTS	PR1004	PR1106	PR1106			
6	SMETS1 EIT Support	PR1106	PR1106	PR1106	PR1125 %	PR1125 %	PR1125 %
7	SMETS1 EIT AWS	PR1017	PR1106	PR1106	PR1125 %	PR1125 %	PR1125 %
8	SMETST1 IOC Infrastructure and Infra Support	PR1017	PR1106	PR1106			
9	SMETS1 Additional Service User Simulators		PR1106				
10	SMETS1 IOC SIT-A PST				PR1125	PR1125	PR1125
11	SMETS1 IOC SIT-A PST Support				PR1125 %	PR1125 %	PR1125 %

Securing Value for Money

A SOW and associated Price Breakdown were submitted by [REDACTED] on 20 August 2019. This SOW proposed a maximum price of [REDACTED]for the period August to October 2019. Whilst negotiations took place, DCC provided [REDACTED] with commercial cover through a Letter of Instruction to enable the work to continue. Monthly milestones were added to PR1125 to enable payments to be financed. A second made a slight adjustment to the SOW, increasing the estimated cost to [REDACTED].

The PR1125 milestones were achieved by the production and agreement of monthly trackers and summary billing reports for the preceding month produced by DSP and provided to the DCC by the 10th working day in the prevailing month. The monthly trackers and summary billing report include the effort expended (including name and role type) and, where relevant, materials procured. DCC tracked the budget and spend using the billing reports and challenged the spend.

PR1125 payments were financed in December 2019 and March 2020. The table below illustrates that PR1125 was delivered in time and financed under the estimated cost.
[REDACTED]

[REDACTED]

Table 15: Price Breakdown for PR1125

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW & Price Breakdown v1.0 received	SOW v1.1 received	Price Breakdown v2.0 received	SOWA signed
PR1125	16/08/2019	20/08/2019	27/08/2019	19/09/2019	29/11/2019

Table 16: Change Process for PR1125

3.4.2 Build and Test – MOC

3.4.2.1 [REDACTED] – PR1047 (System Integration for MOC)

Drivers and Scope

PR1006 was raised in June 2018 to procure System Integration (SI) services in support of proving and implementing Middle Operating Capability (MOC) scope and capability. PR1006 was not progressed to approval, however, two Letters of Instruction against its original scope (and the subsequent mobilization to support FOC) were issued by DCC in order to cover SI costs incurred on both MOC and FOC scope delivery to end Jan 2019.

At initial issue, PR1006 was intended to support take on of the L+G cohort ([REDACTED] HES) of SMETS1 devices. The scope of MOC had subsequently been revised (in line with the amended implementation sequence implied in the Nov 2018 update to the LC13 plan) to cover the Honeywell Elster devices that are connected to [REDACTED], along with Secure meters connected to Secure SMSO. In response to this, PR1006 was replaced by PR1047, which sought to procure the full extent of the SI services required to integrate and implement the MOC solution. PR1047 covered the time period and scope of MOC implementation for the period to end August 2019 in line with the revised LC13 plan dates for MOC. This PR1047 scope covers those areas in the model shaded in blue.

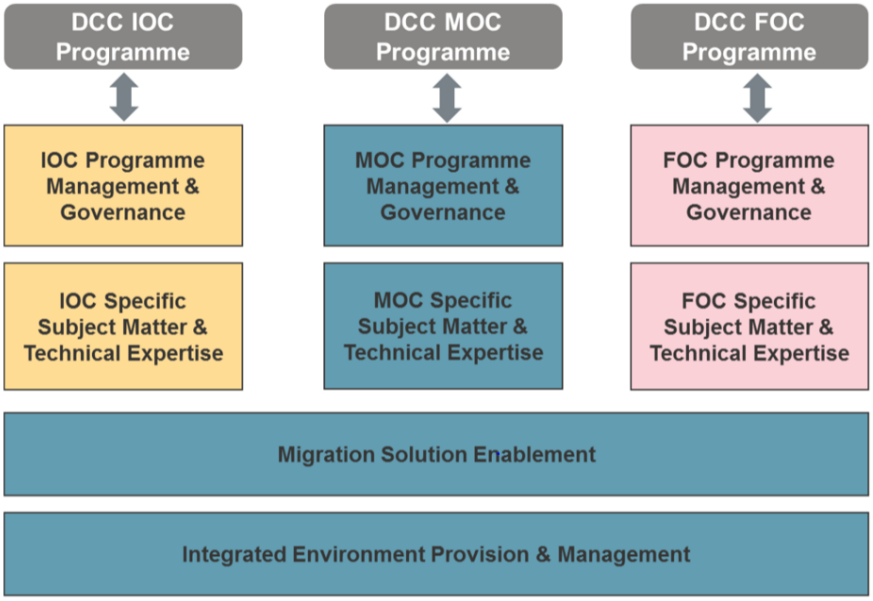


Figure 2: Scope for PR1047

Securing Value for Money

The initial SOW and associated price breakdown for PR1047 was received in February 2019. The SOW proposed a maximum price of [REDACTED] for the period September 2018 to September 2019 (13 months). Whilst negotiations took place, DCC provided [REDACTED] with commercial cover through Letters of Instruction to enable the work to continue.

Several iterations of the SOW and price breakdown followed throughout the negotiations with a second SOW increasing the proposed cost to [REDACTED]. DCC reviewed the costs in the context of [REDACTED]'s SI proposals for SMETS1 as a whole. Roles and responsibilities were clarified, rate variations questioned and where elements of the PR potentially crossed over each other, any overlaps

were identified and removed from the forecast costs. On conclusion, the final SOW was agreed at a maximum price of [REDACTED] for the period September 2018 to September 2019 (13 months) with an average monthly cost of [REDACTED].

Monthly milestones were added to PR1047 to enable payments to be financed. The PR1047 milestones were achieved by the production and agreement of monthly trackers and summary billing reports for the preceding month produced by DSP and provided to the DCC by the 10th working day in the prevailing month. The monthly trackers and summary billing report include the effort expended (including name and role type) and, where relevant, materials procured. Monthly trackers were reviewed and agreed with DCC.

PR1047 payments were financed in March 2019, June 2019, September 2019 and March 2020. Final costs were [REDACTED] against the forecast of [REDACTED], representing a £0.2m saving.

[REDACTED]

Table 18: Price Breakdown for PR1047

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW received	SOWA signed
PR1047	30/01/2019	05/02/2019	28/03/2019

Table 17: Change process for PR1047

3.4.2.2 [REDACTED] – CR1119 (MOC-[REDACTED] SIT preparation and execution)

Drivers and Scope

CR1119 was raised with the view to solicit an impact assessment from [REDACTED] (DSP) for the detailed preparation and execution of System Integration Testing (SIT) for SMETS-1 MOC, covering both the Secure and [REDACTED] (Elster-Honeywell) device cohorts. At the time of raising this CR, the LC13 plan specified that both Secure and the [REDACTED] Elster Honeywell meter cohorts should be live and ready for migration at the end of September 2019. At a high level, the scope of CR1119 can be summarised as focusing on:

- Dormant Meter Readiness Testing (DMRT);
- Migration Solution Testing (MST);
- Solution Test for MOC [REDACTED]; and
- Activities related to the completion of SIT preparation.

The impact of not progressing this would mean that there was no agreed commercial cover for [REDACTED] to carry out SIT for the MOC part of SMETS-1 Programme. As a result, no [REDACTED] and Secure meter cohorts would be capable of going live in accordance with the LC13 plan.

Securing Value for Money

A draft Preliminary Assessment was received by DCC in April 2019 without a breakdown of the costs due to the uncertainty of delivery dates at the time of raising this CR. A breakdown of costs was received by DCC in July 2019 together with an IA, which proposed a maximum price of [REDACTED] with the majority of the SIT testing taking place August – November 2019 (4 months). Negotiations on price and

timescales followed, resulting in a leaner but longer plan. The timescales were extended to January 2020, and an increase to costs due to a delayed start was written off by the DSP. The final Impact Assessment agreed a price of [REDACTED] and reduction of £1.16m.

While discussions on price and timescales continued DCC issued two Letters of Intent to [REDACTED] on 5 August 2019 and on 30 August 2019 to provide commercial cover.
A breakdown of the costs and summary of the price reductions is provided in the tables below.
[REDACTED]

Table 18: Price Breakdown CR1119

Initial price (IA) (£m)	Final Price (£m)	Difference (%)
[REDACTED]	[REDACTED]	**-39.4**

Adherence to Change Process
The table below sets out the timescales for the change process for this CR.

CR/PR	Issue date	PIA received	IA received	IA approved	CAN signed
CR1119	19/03/2019	15/04/2019	05/07/2019	26/09/2019	29/11/2019

Table 19: Change process for CR1045

3.4.2.3 [REDACTED] – PR1119 (MOC SIT Extension)

Drivers and Scope

PR1119 was raised to enable an extension of activities provided by PR1047, which provided cover until the end of September 2019. In order to de-risk the delivery of the SMETS1 Programme, an LC13 plan consultation was carried out at the end of 2018. As part of the re-baselining of the LC13 plan, it was decided to split the MOC and treat both cohorts within it i.e. [REDACTED] and Secure separately. This was to decouple the [REDACTED] cohort from Secure and therefore enable that capability to be available sooner, whilst retaining a coherent environment plan and supporting a smoother delivery profile. The objective of this PR is to extend SI activities to support the revised go-live target of [REDACTED] in March 2020 and Secure in June 2020. Resources are provided under PR1119 between October 2019 and April 2020. The extended activities under PR1119 align with the scope as agreed under PR1047.

Securing Value for Money

The first SOW v1.0 that was raised costed the work on a time and materials basis at [REDACTED]. The work was expected to take 7 months. The breakdown of the costs is as follows:

[REDACTED]

Table 20: Price Breakdown SOW v1.0 PR1119

The resource profile provided by the [REDACTED] was challenged and questioned throughout to ensure the profile was suitable for the scope of works. Examples of the resource challenges included volume of man days required of a specific role, whether a role was required, and evaluations of resource against comparable PRs/CRs. [REDACTED] submitted a second version of the SOW 1.1 with an increased cost of [REDACTED], broken down as follows:

[REDACTED]

Table 21: Price Breakdown SOW v1.0 PR1119

The cost increased by [REDACTED] with costs changing in two categories:

- MOC programme management and governance – a total cost of [REDACTED] (+13.7%) and 668 (+54) man days with a weighted average day rate of [REDACTED]. This is due to a requirement to have a Senior Programme Manager [REDACTED] for a further 3-month duration for the project, extended from 2 months.
- Core DSP setup expenses were negotiated from [REDACTED]to [REDACTED] ([REDACTED]and down 20%).

A further re-iteration took place, with SOW v1.3 costing the work at [REDACTED]. charges were broken down as follows:

[REDACTED]

Table 22: Price Breakdown SOW v1.0 PR1119

The cost decreased by [REDACTED] (-9.5%) with costs changing in three main categories:

- MOC programme management and governance – a total cost of [REDACTED] [REDACTED] and down 5.9%) and 612-man days with a weighted average day rate of [REDACTED].
- MOC subject matter and technical expertise – a total cost of [REDACTED] ([REDACTED] and down 16.3%) and 329-man days with a weighted average day rate of [REDACTED] as resource was moved to lower levels of expertise; and
- MOC migration solution – a total cost of [REDACTED] ([REDACTED]and down 14.4%) and 238-man days with a weighted average day rate of [REDACTED] as a result of a resource time reduction.

SOW v1.0 (£m)	SOW v1.1 (£m)	SOW v1.2 (£m)	Difference (%)
[REDACTED]	[REDACTED]	[REDACTED]	**-4.5**

Adherence to Change Process
The table below sets out the timescales for the change process for this CR.

CR/PR	Issue date	IA confirmation	SOW V1.0 received	SOW V1.1 received	SOW V1.2 received	SOW V1.3 received	SOWA signed
PR1119	18/07/2019	02/08/2019	15/08/2019	13/09/2019	23/09/2019	26/09/2019	06/10/2019

Table 23: Change process for PR1119

3.4.3 Build and Test – FOC

3.4.3.1 [REDACTED] – PR1045 (SIT – FOC)

Drivers and Scope

PR1006 was raised in June 2018 to procure System Integration (SI) services in support of proving and implementing MOC scope and capability. PR1006 was not progressed to approval at the time, however, two Letters of Instruction were issued by DCC in order to cover SI [REDACTED] costs incurred on both MOC and FOC scope to end January 2019. At initial issue, PR1006 was intended to support the L+G cohort ([REDACTED] HES) of SMETS1 devices, this cohort (originally identified as being in scope for MOC) has subsequently been rebadged as forming the scope for FOC in line with the a amended implementation sequence implied in the November 2018 update to the LC13 plan. PR1045 v1.0 was subsequently raised to procure the full extent of the SI services required to integrate and implement the FOC solution, covering the period to end October 2019 in line with the proposed LC13 plan dates for

FOC. A second version of PR1045 was however raised to reflect the updated SMETS1 timescales following the October 2018 LC13 consultation.

At a high level the objective of this PR is to ensure successful preparation for, and subsequent execution of, FOC integration testing and, thereafter, the implementation of the FOC solution into live operation. PR1045 was replaced by PR1006, which is described in more detail further below.

Securing Value for Money

The initial SOW proposed a maximum price of [REDACTED] for the period September 2018 to October 2019 (14 months) with an average monthly cost of [REDACTED]. Negotiations on PR1045 commenced in February 2019. Whilst negotiations took place, DCC provided [REDACTED] with commercial cover through Letters of Instruction to enable the work to continue. There were several iterations of both the Statement of Work and the price breakdown. DCC reviewed PR1045 Price Breakdowns in the context of [REDACTED] SI proposals for SMETS1 as a whole. Roles and responsibilities were clarified, rate variations questioned and where elements of the Project Requests potentially crossed over each other, any overlaps were identified and removed from the forecast costs. Negotiations finally concluded in August 2019. The final SOW gave a maximum price of [REDACTED] for the period September 2018 to March 2020 (19 months) with an average monthly cost of [REDACTED]. The SOW was signed in August 2019. Monthly milestones were added to PR1045 to enable payments to be financed. PR1045 milestones are achieved by the production and agreement of monthly trackers and summary billing reports for the preceding month produced by DSP and provided to the DCC by the 10th working day in the prevailing month. The monthly trackers and summary billing report include the effort expended (including name and role type) and, where relevant, materials procured.

SOW v1.0 (£m) (period of 14 months Sep18-Oct19)	Final Price (£m) – SOW v1.1 (period of 19-month s Sep18-Mar20)	Difference (%)
[REDACTED]	[REDACTED]	**-2.35**

PR1045 payments were financed in September 2019, March 2020, with the final payment being made in June 2020.

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	PIA received	CAN signed
PR1045	27/12/2018	28/01/2019	21/08/2019

Table 24: Change process for CR1045

3.4.3.2 [REDACTED] UK [REDACTED] – CR1106 ([REDACTED] Licences, Support and Maintenance)

Drivers and Scope

At the point of the [REDACTED] ANSO contract award for the SMETS1 FOC Programme, a database solution was yet to be agreed. A number of options were being explored including the use of an SQL database or an [REDACTED] database. As part of the implementation design process for the [REDACTED] Head End System DCC, [REDACTED] and [REDACTED] had considered the respective options and captured these within the High-Level Design (HLD) document '[REDACTED] ANSO HLD v1.8 ([REDACTED] Requirements)'. Following an assessment of both options, all parties concluded that the use of an [REDACTED] database offered the most preferable solution given the size of the

database and the optimisation characteristics of the software. This resulted into CR1106 being raised by DCC to procure the [REDACTED] database licenses support and maintenance.

The scope of CR1106 included the purchase of [REDACTED] licenses together with the associated monthly [REDACTED] support and maintenance, under a 36-month leasing agreement, with financing to be arranged by [REDACTED].

Securing Value for Money

[REDACTED]Impact Assessment for the work required under CR1106 was costed at [REDACTED]. In parallel to this, DCC had requested quotes from [REDACTED] and [REDACTED]. In exploring the option of procuring [REDACTED] licenses via [REDACTED], we noted that [REDACTED] had only procured a limited number of licenses for specific projects and they are not transferrable to ANSO-[REDACTED] environments. No quotes were received via [REDACTED] as it buys [REDACTED] licenses for internal use within its own environments as opposed to being used in a competitor's supplier environments.

Whilst engaging [REDACTED] directly, DCC was advised that it would be preferable for [REDACTED] to leverage its platinum partner status with [REDACTED] to obtain the best possible quote. As [REDACTED] had indicated that [REDACTED] was the best way to procure the [REDACTED] licenses, DCC challenged the costs through a series of commercial meetings held throughout February and March 2019. This ultimately resulted in a [REDACTED] reduction in charges, bringing down the final cost to [REDACTED].

IA **Price (£m)**	**Final Price (£m)**	**Difference (%)**
[REDACTED]	[REDACTED]	**-9.5**

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	PIA received	IA received	IA approved	CAN signed
CR1106	05/02/19	-	18/03/2019	19/03/19	12/06/19

Table 25: Change process for CR1106

3.4.3.3 [REDACTED] UK [REDACTED] – CR1134 ([REDACTED] Enduring Support for FOC)

Drivers and Scope

CR1134 is a continuation of CR111410, that introduced the [REDACTED] service wrapper and data base management during the implementation phase of the programme i.e. up to the start of FOC go-live. CR1134 extends the [REDACTED] Enduring Support that was procured under CR1114. The enduring management of the [REDACTED] databases (above hardware and OS level) is not currently in scope for [REDACTED]. [REDACTED] was only contracted to configure the hardware and load the operating system on the servers. Under CR1134, [REDACTED] was requested to:

- Provide 24x7 [REDACTED] support above the Operating System (OS) for the requested environments;
- Monitor the application databases including monitoring of the file systems and tablespaces;
- Implement housekeeping policies to help maintain the performance of the databases, based on recommendations on data retention from DCC and [REDACTED]; and

[10] [REDACTED] Configuration and support to FOC go live.

- Provide [REDACTED] Incident Management, support triage and perform [REDACTED] resolution activities necessary to restore service in the event of an incident.

The impact of not progressing CR1134 would result in potential delays in the establishment of the databases and clear cover for 24hr support.

Securing Value for Money

Upon receipt of the IA, [REDACTED] quoted a cost for the work on CR1134 of [REDACTED]. This cost however only covered 31 months of the 34 months term that was set out in the agreed financial model. This brought the total cost of CR1134 to [REDACTED].

Given that this service wrapper is an extension to an already provisioned service wrapper under CR1114, no further reductions could be achieved in addition to the savings that were realised as part of CR1114. The IA took some time to agree due to [REDACTED] being over cautious in terms of accepting risk and non-adherence to DCC standard SLA's. However, the agreement of the IA and subsequent CAN was completed but took several months and numerous iterations to close out all the commercial issues to a satisfactory outcome.

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	PIA received	IA received	IA approved	CAN signed
CR1134	25/03/19	-	14/05/19	19/09/19	12/12/19

Table 26: Change process for CR1134

3.4.3.4 [REDACTED] UK [REDACTED] – CR1218 (Design and Build Extension for FOC)

Drivers and Scope

CR1218 covers the extension of [REDACTED] resources to support the build and implementation of the FOC. The extension was in direct response to the revised LC13 timescales, postponing the assumed go-live date for FOC to the end of July 2020. CR1218 seeks to cover Programme support between November 2019 and the end of July 2020. Following that, [REDACTED] will provide early life support for an additional 3 months. In respect of the additional early life support cover, it should be noted that this scope is excluded from CR1218 but instead already is covered for under the baseline contract charges. CR1218 was expected to run between February 2020 and complete in July 2020. The scope of CR1218 includes support in the following areas:

- FOC specific governance meetings;
- [REDACTED] PIT;
- Security & Penetration Testing;
- Integration & Architecture;
- Service Management;
- Environment Scaling;
- Target Response Times; and
- Business Continuity Disaster Recovery

Securing Value for Money

The SOW for CR1218 was provided for on a fixed cost basis between November 2019 and January 2020, followed by a time and materials basis for the remaining scope of the work until July 2020. The quotation for this CR was based on the level of resources that had been requested, with costs for the requested resources being in line with the rate card charges included within the contract. The FOC requirements were carefully finessed with [REDACTED] in order to fully understand the key cost drivers and precisely map out the required resources to meet the scope of CR1218.

Due to the T&M based approach there was no reduction other than DCC's strict control of required resources that were required to meet the ongoing programme timeline. The total forecast for the SOW is [REDACTED]. The table below provides a breakdown of the payment milestones for the respective period covering the scope of CR1218.

MONTH	CHARGE	Charging Basis
Nov-19	[REDACTED]	Fixed Price
Dec-19		Fixed Price
Jan-20		Fixed Price
Feb-20		Time & Materials
Mar-20		Time & Materials
Apr-20		Time & Materials
May-20		Time & Materials
Jun-20		Time & Materials
Jul-20		Time & Materials

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	PIA received	IA received	IA / SOWA approved	CAN signed
CR1218	08/08/19	26/09/19	31/01/2020	06/20/20	16/03/20

Table 27: Change process for CR1218

3.4.4 Build and Test – DCO

3.4.4.1 [REDACTED] – PR1160 (Extended FOC delivery timescales)

Drivers and Scope

In consultation with BEIS and industry, DCC ran a consultation in November 2019 to de-risk the timely delivery of the subsequent updates for all operating capabilities. For the delivery of the FOC, the consultation resulted in delay of the go-live date from December 2019 to July 2020. This required extensions to the duration of support and/or delivery required by FOC Suppliers to align to the new timelines. PR1160 seeks to support the extension of the programme timescales and to enable enhanced interoperability amongst FOC SMETS1 Service Provider (S1SP), Dual Control Organisation (DCO) and meter combinations following technical learnings from IOC and internal learnings from FOC Programme. Not extending the duration of support required for Suppliers would result in the programme activities not being completed and Go Live not being achieved.

The scope of this PR involves the extended support that is required from [REDACTED] to cover for the:

- Extended Early Integration Testing (EIT) for the FOC until the start of the SIT phase;
- Extended SIT timelines for the FOC; and
- Postponed Go-live date.

Securing Value for Money

[REDACTED] submitted to DCC two separate versions of the Statement of Work (SOW) for this PR. The first SOW was costed at [REDACTED]. DCC challenged and eventually rejected the SOW as it sought to keep the costs for this PR below [REDACTED].

In response to our request to look at a more efficient spread of [REDACTED] team across the Programme, as well as a comparison of the rates used during the IOC SIT phases, [REDACTED]

reduced the cost to [REDACTED]. The DCC Board approved the SOW in November 2019. Typically, we would not provide information on CRs or PRs that are under the £1m threshold, but given this example is only marginally below, we have included it for completeness.

SOW v1.0 provided in October 2019 (£m)	Final Price (£m) – SOW v1.1	Difference (%)
[REDACTED]	[REDACTED]	**-14.9**

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW Received	Revised SOW Received	Revised SOW approved	Signed SOWA
PR1160	19/09/2019	30/10/2019	19/11/2029	28/11/2019	19/12/2019

Table 28: Change process for CR1160

3.4.4.2 [REDACTED] – PR1067 (FOC DCO Go-Live)

Drivers and Scope

The SMETS1 DCO was initially developed to support IOC. It was always envisaged from the SMETS1 design that the DCO infrastructure and support wrap would need to be extended and upgraded to support FOC. The mobilisation work for the FOC DCO programme itself was supported by PR1052. The objective of PR1067 is to contract for the subsequent stages from the design to the go-live of FOC. The delivery of PR1067 falls under the LC13 plan requirements and is critical to the FOC stage of the Programme in making sure that the security arrangements are appropriately upgraded. More specifically, the scope of this PR includes:

- Uplifts to network environments for additional VMs and Database capacity;
- New environment for performance testing;
- Network changes;
- Security related activities;
- EIT execution, SIT support, UIT support and Go-Live support;
- Capacity and performance testing; and
- Transition to Run

Not progressing this PR would put the delivery of FOC at risk as the DCO would not meet the required regulatory requirements for FOC.

Securing Value for Money

Two SOWs were issued by [REDACTED] in respect of PR1067. The first SOW was priced at [REDACTED] and challenged by DCC by:

- Ensuring that the requirements within the SOW were solely related to the need and scope of work under this PR;
- Ensuring that [REDACTED]'s resources across the different SMETS1 projects were being optimized; and
- Comparing against past projects to ensure that the charges for both resourcing and computing are consistent.

Careful reviews by SMEs within both DCC and [REDACTED] have led to net saving of approximately £70k.

SOW V1.0 (£m)	SOW V2.0 (£m)	Difference (%)
[REDACTED]	[REDACTED]	**-2.74**

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW V1.0	SOW approved	SOWA signed
PR1067	05/03/2019	15/07/2019	04/09/2019	04/09/2019

Table 29: Price Breakdown for PR1067

3.4.4.3 [REDACTED] – PR1124 (DCO C-stream environments)

Drivers and Scope

During the second half of 2019, there were a number of separate functional releases scheduled for the DSP, including the November 2019 SEC MOD release, SMETS1 MOC as well as SMETS1 FOC. With SMETS1 IOC taking up testing environment UIT-A, the provision of a new system capacity UIT environment was required. To avoid contention and delays to test progress, it was proposed that a SIT-C environment was created to enable SMETS1 FOC testing to proceed in parallel with November 2019 testing. The request for a C-Stream environment was proposed by DCC CTO, following an Environments review with the SMETS1 and November 2019 programme teams. At a high-level, a C-Stream Test Environment is required for the following reasons:

- The environment dependency that FOC has on MOC will be reduced with the introduction of a C-Stream Environment, such that minor deviations to the MOC plan will not necessarily directly impact FOC integration timescales;
- The hard dependency that exists between the November 2019 SEC Release and FOC will be removed with the introduction of a C-Stream Environment, reducing the risk on both; and
- The environment will be in place until the end of November 2019 after which time it will be decommissioned.

Not progressing this PR would have congested the testing activities for both MOC and FOC, and as a result lead to a potential delay of the Programme.

Securing Value for Money

[REDACTED] provided a ROM to DCC in August 2019, estimating the high-level requirements for PR1124 at [REDACTED]. Both parties worked closely together to refine the requirements over the course of September 2019, which resulted in [REDACTED] issuing a SOW at the end of October 2019. The SOW priced PR1124 at [REDACTED], an increase against the ROM price of approximately [REDACTED]; this was due to DCC's request for an additional month of support. A breakdown of the payment milestones is provided in the table below.

[REDACTED]
The second iteration of the SOW was signed by both parties, however additional negotiation led to the final and third version of the SOW including a discount of approximately 23k.

SOW V1.0 and V2.0 (£m)	SOW V3.0 (£m)	Difference (%)
[REDACTED]	[REDACTED]	**-2.19**

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW received	2nd Iteration received	3rd iteration	SOW signed
PR1124	16/07/2019	31/10/19	29/11/19	20/12/19	04/12/19 & 20/12/19

Table 30: Change process for CR1124

3.4.5 SMETS1 Migration

3.4.5.1 [REDACTED] – CR1168 (Commissioning Party Service)

Drivers and Scope

The SMETS1 approach for migration introduces a new component to the SMETS1 design i.e. the Commissioning Party. DCC contracted with [REDACTED] in 2018 to provide enduring services for the Dual Control Organisation (DCO). In order for [REDACTED] to deliver and perform both the function of the Dual Control Organisation (DCO) as well as the Commissioning Party, a variation was sought to that agreement to incorporate the additional requirements for the Commissioning Party (CP). The CP is a critical component of the SMETS1 design and is essential to facilitate the migration on behalf of industry. The purpose and design of the CP was consulted on with industry and is set out as a regulatory requirement in the SEC.

The scope of the changes that are required under CR1168 are:

- Adding the Commissioning Party requirements to the ANSO agreement;
- Introduce additional performance measures, specific to the Commissioning Party;
- Include additional operational charges associated with the Commissioning Party;
- Include an implementation plan to reflect any changes as a result of the Commissioning Party; and
- Add additional testing responsibilities arising from Commissioning Party.

The scope of this change aligns to the regulatory requirements as set out in the SEC i.e. the SMETS1 Transition and Migration approach document.

Securing Value for Money

Due to the urgent nature of this change i.e. to get the service up and running in time for IOC Go-Live at the end of July 2019, it was agreed that a Rough Order of Magnitude (ROM) – based on initial requirements as set out in PR1059 as well as a list of assumptions – would suffice instead of a preliminary IA (PIA) or an IA. The ROM provided quoted a [REDACTED] cost.

Negotiations took place on a weekly basis throughout June 2019, with DCC challenging key internal stakeholders to ensure that the assumptions on which the ROM was based were accurate. In doing so, DCC introduced a number of adjustments to the assumptions including the number of installations that the system could handle and process per day. As a result, the number of installations was lowered to reduce the overall computing power that was required, with the potential prospect of lifting the volume up if required at a later stage. The overall cost of this PR was reduced to [REDACTED].

ROM provided in April 2019 (£m)	Final Price (£m)	Difference (%)
[REDACTED]	[REDACTED]	-13.3

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	PIA received	IA received	IA approved	CAN signed
CR1168	30/05/2019	N/A	N/A	N/A	23/07/19

Table 31: Change process for CR1168

3.4.5.2 [REDACTED] – PR1059 (Commissioning Party Build)

Drivers and Scope

PR1059 was specifically set up to develop the CP infrastructure, which facilitates the enrolment of SMETS1 meters into the DCC system through a DCC provided service rather than through our customers developing their own enrolment solution. It was agreed through discussions with our customers that the former was an easier and more cost-effective solution. The CP functionality is solely required for the duration of the migration process of SMETS1 devices.

The exact scope of PR 1059 involved:

- Building 6 host environments;
- Deploying the CP software;
- Perform testing to ensure the application is operational;
- Perform system integration and performance testing (SIPT); and
- Volumetric performance testing and disaster recovery testing in the regulated environments.

Securing Value for Money

In December 2018, DCC issued [REDACTED] with a Letter of Instruction to define the infrastructure and design requirements for the building phase of the Commissioning Party. A first iteration of the SOW provided an initial cost of [REDACTED]but was challenged and rejected on the basis that it did not include all requirements. A second and third version of the SOW were provided by [REDACTED] during April 2019 with the purpose of addressing DCC's concerns. The final SOW was quoted at a price which was approx. [REDACTED]higher than SOW v1.0 and reflective of the requirements that were previously not included. Given that the SOW was costed on a time and materials basis, DCC was unable to guarantee any further reductions other than the 2% discount which was applied in accordance with the contractual agreement with [REDACTED]. The total cost of the SOW including the 2% discount was [REDACTED].

ROM provided in April 2019 (£m)	Final Price (£m)	Difference (%)
[REDACTED]	[REDACTED]	**-10.4**

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	SOW received	2nd iteration	3rd Iteration	SOW signed
PR1059	**12/02/19**	**27/03/19**	**09/0419**	**24/04/19**	**03/06/19**

Table 32: Change process for PR1059

3.4.5.3 DSP – PR1145 (Extended Migration Solution and AMST - IOC)

Drivers and Scope

The IOC release was promoted to Production at the end of July 2019. During the first phase of live IOC, dormant Itron meter functionality was made available in Production. A second IOC phase began in September 2019 for active Itron meters, mixed supplier devices and mixed active dormant devices. In parallel with provision of the IOC operational service, DSP was required to maintain a subset of both the IOC delivery team (as per under PR1025) and the Systems Integrator (SI) team (as per under PR1026) to provide extended IOC integration services during migration. Due to further unforeseen technical and device specific issues, the SMETS1 active meter go-live date was delayed from 20 October 2019 to the end of November 2019. PR1045 is in effect an extension of PR1025 and PR1026; it supports the extended migration solution testing and revised active meter solution testing (AMST) for the extended period. For the avoidance of doubt, there is no overlap between the continued IOC integration activity covered by PR1125 and PR1126.

The scope of PR1145 provides continued support for SIT activities, covering the period mid-September 2019 until the end of November 2019. In line with the opted charging mechanism for various other CRs/PRs, PR1145 is run on a Time & Materials basis, allowing a variable resource solution which could be scaled up or down with prior written approval by the programme. At a high level, PR1145 provides extended support for:

- Active meter solution testing (AMST) due to the revised active meter go-live date moving from 15 October 2019 to the end of November 2019;
- Migration Solution Testing;
- Systems Integrator services; and
- Programme Management, Programme Assurance and Programme Operations to support the above activities.

Securing Value for Money

Upon receipt of the SOW, DCC challenged and questioned the resource profiles to ensure that it was suitable for the scope of this work and seamlessly continued from the resource levels that were provided under PR1125. Examples of the resource challenges included volume of man days required of a specific role, whether a role was required, and evaluations of resource against comparable PR's / CR's.

The total setup charges (Time & Materials) was based on 1,518-man days with a weighted average day rate of [REDACTED]. The costs for PR1145 estimated at [REDACTED], and are broken down as follows:

[REDACTED]

Table 33: Price Breakdown PR1145

Adherence to Change Process

The table below sets out the timescales for the change process for this PR.

CR/PR	Issue date	IA confirmation	SOW V1.0	SOW approved	SOWA signed
PR1145	16/09/2019	26/09/2019	11/10/2019	26/11/2019	17/12/2019

Table 34: Change process for PR1145

Centralised Registration Service (Switching Programme)

Purpose, Scope and Structure

DCC is Ofgem's key delivery partner and active co-ordinator of contractors working to deliver the Design, Build and Test (DBT) phase of its Switching Programme, which aims to:

> "…*improve consumers' experience of switching, leading to greater engagement in the retail energy market by designing and implementing a new switching process that is reliable, fast and*

cost-effective. In turn this will build consumer confidence and facilitate competition, delivering better outcomes for consumers."[11]

The DBT phase of the Programme was directly preceded by the Enactment phase. That phase was covered by the previous price control submissions. As part of the Enactment phase, the procurement of four key service provider contracts was necessary and approved. Only one of these was procured in RY18/19 and was justified in last year's price control submission. The other three procurements ([REDACTED], SMTP and CSA) actually completed in the first quarter of RY19/20. Justifications for these three procurements are included as annexes to this submission. Following the DBT phase DCC will commence its role as Switching Operator responsible for live operations of the system, which is expected to commence late in RY21/22. Ultimate success for the Programme is for consumers - whether householders or businesses - to access faster, more reliable switching of their energy suppliers, in turn supporting a more competitive energy market. DCC is dedicated to playing an active role in enabling the Switching Programme through efficient and economical actions to achieve Ofgem's core objectives.

The DCC Switching Programme's Aims and Objectives

DCC's contribution to the Switching Programme has three core purposes:

- To advise - providing advisory services to support the Ofgem-led definition of the end-to-end switching arrangements;
- To meet the requirements - ensuring that the procured Central Switching Service (CSS) will meet the requirements defined by the Programme;
- To deliver - delivering the procured CSS, including managing the contracted delivery partners, and managing progress through DBT and the early years of operation.

These objectives are founded on DCC's Licence and the Retail Energy Code (REC), and they advance through the various Programme phases of Enactment, DBT and Live Operations. DCC's focus is to design, implement, manage, and maintain a solution that will enable fast and reliable switching of energy suppliers nationwide, including the provision of secure data handling. The current aims of the Switching Programme are directly influenced by DCC-held consultations, such as the one which took place from 10 April 2019 to 07 May 2019 on the DCC Switching DBT Business Case that provided feedback from industry and led to revised costs, added clarity around resourcing and clearer recognition of past Programme lessons learnt.

The DCC Switching Programme's Commitment to Stakeholder Engagement

DCC has a Switching Programme Stakeholder Engagement Strategy and an associated approach and plan which is updated on a quarterly basis. The approach includes a stakeholder map which identifies eight broad categories of stakeholder and six different key engagement mechanisms. Regular and targeted engagement with stakeholders commenced at an early stage in the DBT phase to ensure understanding of the role of DCC and its service providers within the delivery of the overall Programme. A key part of the approach is Switching Industry Summits, the first of which was held in July 2019 and attended by nearly 100 delegates, which are designed to provide information to stakeholders on the most relevant topics at the time, such as testing, data and security. They are scheduled to run three times a year and involve presentations by both DCC and its service providers as well as question and answer sessions with the DCC Switching team and our service providers. As part of our approach we also run regular stakeholder engagement satisfaction surveys12 to identify areas of engagement which require improvement. The level of overall satisfaction, shown in these survey results, increased over RY19/20 from around 30% to over 70%.

The progress of the delivery of the Switching Programme will continue to be closely monitored against the parameters included within the DCC Switching DBT Business Case. Key stakeholders will be engaged in this process as part of DCC's reporting and during any necessary updating or re-baselining. Updates to the DCC Switching DBT Business Case will happen when there has been a significant financial change or change in approach, including timings, for example as a result of Ofgem's decision to delay the start of User Entry Process Testing (UEPT) at industry's request, which happened in April 2020. Wherever possible, a schedule of changes will be published rather than a fully revised document.

[11] Ofgem, Switching Programme: strategic outline case, https://www.ofgem.gov.uk/system/files/docs/2017/01/switching_programme_-_strategic_outline_case.pdf

[12] The satisfaction surveys are run linked to the Industry Summits which are typically held three times a year.

Where it has been agreed that an update to the Business Case is required, the development of this update will include stakeholder engagement. The change triggering the update will be managed through Ofgem's Programme governance and the form and timing of the update will be cleared through DCC governance, including ExCo.

Monitoring and reporting of DCC's involvement in the Switching Programme will be delivered primarily through Programme governance and ex-post annual price control reporting. For the annual price control purposes, the Switching Programme always has a zero baseline, and all costs must be justified through the price control mechanism.

There are two main Programme governance forums, the Delivery Group and the Implementation Group, both of which meet monthly. DCC reports on progress, both in terms of time and quality and a summary update on finance against the baseline budget set out in the DCC Switching Business Cases.

DBT Phase Key Activities

The approach to the DBT phase is defined in the Core Systems and Services Integration Approach (CSSIA) and Core Systems and Services Integration Plan (CSSIP) which were developed by the Systems Integrator (SI) and baselined by Ofgem at the start of October 2019. The CSSIP identifies seven workstreams:

- Readiness Assessment – this is the responsibility of the Programme Co-ordinator (PC) appointed by Ofgem.
- Regulatory – this is the responsibility of Ofgem's Regulatory Team. This team is being supported by DCC's Regulatory team in the drafting of versions 2 and 3 of the REC which will come into effect when the Programme moves into live operation.
- Solution Delivery – a key focus for DCC and its service providers.
- Business Change – this is the responsibility of Ofgem and its PC.
- Testing – a key focus for DCC and its service providers.
- Data – a key focus for DCC, the SI and the CSS Provider ([REDACTED]).
- Transition – a key focus for DCC and its service providers.

The DBT Incentivisation Framework

The DBT incentives framework will place DCC's margin at risk based on the timely delivery of key milestones to agreed quality. Five delivery milestones (DM) have been identified for the DBT phase following consultation with industry:

- DM1 - DBT Readiness – this milestone represents completion of mobilisation and planning for DBT which gives certainty to the industry parties to commence their DBT activities.
- DM2 - CSS Pre-integration Test (PIT) Exit – this milestone represents successful completion of the initial, pre-integration testing of the CSS.
- DM3 - SI Readiness for Systems Integration Testing (SIT) – this milestone represents successful completion of the planning and preparation activities for SIT, including development and agreement of the SIT Plan.
- DM4 - End to End (E2E) Testing Exit – this milestone represents successful completion of the Programme-led E2E testing. The SI is responsible for planning and managing the execution of this stage of testing.
- DM5 - Transition Stage 2 Exit – this milestone represents successful completion of all Transition Stage 2 exit criteria when Retail Energy Location (REL) data is created for the population of the CSS.

The milestones will be assessed against agreed programme entry/exit gate assessment criteria which will be maintained by the PC. The completion of incentivised milestones will be assessed by the Licensed Party Assurer based on achievement of these acceptance criteria, including completion of any stakeholder engagement specified in the Product Description for the milestone.

The principles and conditions under which the target delivery dates of the incentivised milestones can be changed are set out in a Policy on Incentivised Milestone Management which is closely aligned to the Change Control process. This policy was used for the Transition Phase and was updated to reflect governance changes in the DBT Phase. The policy allows changes to the performance regime, including

but not limited to impacts on the critical path, from scope change driven by the PC, delay outside of DCC's control and materialisation of risks which have been identified as being outside of DCC ownership.

The first of these milestones, DBT Readiness, fell into RY19/20. DCC's position on margin retained against this incentivised milestone is presented in an annex to this submission.

DBT Phase Programme Delivery

Costs incurred during the DBT phase are directly driven by DCC's core responsibility to deliver a Switching service that is economic, efficient, robust, and secure. This responsibility has led DCC to act in the following capacities specifically relating to the CSS, alongside Ofgem's counterparts:

- As a contract manager - managing contracted service providers, including their deliverables, performance tracking, delivery against milestones and associated payments. This includes the objectives of:
  - Taking an active role in the management and delivery of outcomes;
  - Ensuring value for money for the consumer by taking into consideration the estimated "total cost of ownership" of a new switching service across the industry when managing change;
  - Managing innovation and accommodating design modification through contractual arrangements;
  - Mitigating risks through robust processes and contractual arrangements, including mitigating delivery risk and the cost of failure;
  - Managing service providers' Incentivisation frameworks;
- As a manager of design integrity - managing the acceptance and, where relevant, integration of all design artefacts and documentation including system, service, interface, hosting and data specifications. Technical design authorities and design integrity teams are involved in considering change requests and their impacts on the programme timescales and design, with Ofgem holding overall technical design authority and DCC managing the CSS technical design integrity;
- As a solution assurance gatekeeper - managing the testing and proving process, including the acceptance of all testing artefacts, the assurance of test results prior to integration with other service provider systems and scoping and witnessing the Acceptance Tests.
- As an issues manager - assuring triage activities and managing defect escalations and rectifications as necessary.

4 Cost Centre Structure

In order to manage the broad requirements of the Switching Programme efficiently, the organisational model for the DBT phase has been divided into five sub-programmes. These sub-programmes provide the leadership structure through which the programme resources operate, thus allowing resources to be allocated to specific tasks as necessary. These sub-programmes are detailed in the table below.

Function type	Function	Comments / Description
Sub-programmes	Design, Build and Test.	This sub-programme is responsible for the management of two of the Programme's key suppliers, the SI ([REDACTED]) and the CSSP ([REDACTED])
	Operational Readiness.	This sub-programme is responsible for the development of the approach to live service delivery and the management of the Service Management Tools Provider (SMTP) ([REDACTED])
	Data Management and Migration	This sub-programme is responsible for activities associated with obtaining data from industry parties and preparation for and execution of data migration

Function type	Function	Comments / Description
	Data Service Provider Interface	This sub-programme is responsible for the management of the development of the interface between the CSS and the Smart Metering Data Service Provider (DSP) which is managed by [REDACTED]
	Commercial, Regulatory and Engagement	This sub-programme is responsible for commercial management of DCC's service providers on the Switching Programme, DCC's input to the development of the enduring REC and engagement with DCC's stakeholders on the Programme
Additional assurance functions	Design Integrity	Responsible for assuring the completeness of the E2E design
	Test Assurance	Responsible for assuring the testing undertaken by the SI
Oversight	DCC Leadership	Overseeing these sub-programmes is the DCC Leadership and function which will lead the DCC Switching Programme and interface with key stakeholders
	Programme Management Office (PMO)	

The Switching programme structure at the end of RY19/20 is illustrated in the figure below.

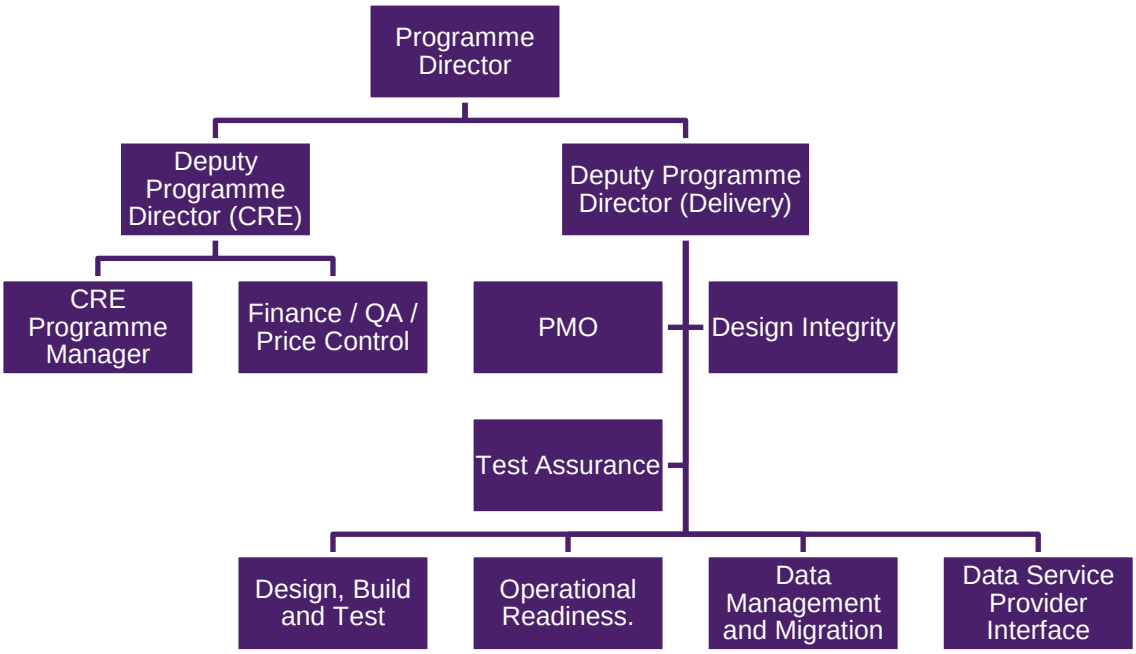


Figure 6: Switching Programme organisational structure

This structure represents a change to the organisational model for the Enactment phase which comprised Commercial and Procurement, DBT Readiness, Operational Readiness, Design Integrity and Regulation and Industry. The transition to the new structure took place over the first quarter of RY19/20 as the DBT phase started up. There are not expected to be any changes to this structure prior to the end of DBT.

The Switching Programme team for the DBT phase comprises predominantly permanent staff, however it is acknowledged that consultants and contractors with specific skill sets may be required on an occasional basis. The ratio of temporary to permanent staff is regularly reviewed and corrected as necessary. The Programme team is insulated from the wider Smart Programme, using a dedicated and discrete team and only calling on central DCC resources for core functions such as Finance and Communications. Any additional resource requirements are recruited specifically for the Switching Programme. This safeguards and protects the level and quality of resources working on the Switching Programme.

The permanent members of the Switching Programme team are drawn from the Programme Management Practice and Functions within the overall DCC organisation.

Incurred Cost by General Ledger Code in the RIGs

For the annual price control purposes, the Switching Programme always has a zero baseline, and all costs must be justified through the price control mechanism. The remainder of this section and the following sections therefore describe the drivers for the activities within the Switching Programme.

A breakdown of incurred and forecast costs in price control format is presented in Table 1 below. This maps costs directly against the Price Control new scope General Ledger codes (GLs). Payroll costs are explained in Section 1.3 and non-payroll External Services costs are explained in a later section.

Table 35: Switching - Incurred Cost by General Ledger Code in the RIGs

Incurred (£m)			RY19/20	RY20/21	RY21/22
Total Centralised Registration Services			4.868	4.131	1.654
Payroll costs	PR	£m	4.402	3.634	1.475
Non-payroll costs	NP	£m	0.228	0.157	0.068
Recruitment	RC	£m	0.032	0.016	-
Accommodation	AC	£m	0.004	-	-
External services	ES	£m	0.176	0.324	0.111
IT Services	IT	£m	0.026	-	-
Office Sundry	OS	£m	0.001	-	-

Incurred Cost by Sub-Team

It should be noted that the sub-team structure within the Payroll system does not match the team structure within the Switching Programme which is illustrated in the figure above. The mapping between the two is presented in the table below.

Payroll Sub-team	Switching Sub-programme / Assurance Function	Comments
DBT Readiness	DBT	
Operations	Operational Readiness	Since the Programme is in the DBT Phase, there are no live operations
DBT Readiness	Data Management & Migration	
DBT Readiness	Data Service Provider Interface	
Commercial and Regulation (including Procurement)	Commercial, Regulatory and Engagement	Procurement activity continued into Q1 of RY19/20 but then ceased
Design and Assurance	Design Integrity	

Payroll Sub-team	Switching Sub-programme / Assurance Function	Comments
Security	Design Integrity	Security is managed as part of the Design Integrity function
Testing	Test Assurance	DCC is assuring the testing work of the Systems Integrator
Service Delivery (including Programme Management)	Oversight (DCC Leadership & PMO)	Since the Programme is in the DBT Phase, there is no service delivery but there is use of Programme Management resource from Service Delivery cost centre

Table 36 below shows the payroll cost by sub-team. In RY19/20, the Commercial and Regulations, DBT Readiness, Operations, Security, Service Delivery payroll sub-teams incurred spends that exceed the typical materiality threshold of £0.15m13. The same teams (except Security) are forecast to show a material incurred cost during RY20/21. The activities and events that are the primary drivers behind these costs are elaborated on in the following sections.

Table 36: Incurred Cost by Sub-team

Centralised Registration Service Internal Costs Payroll Costs	RY19/20	RY20/21	RY21/22
Incurred	**4.402**	**3.634**	**1.475**
Commercial and Regulation	0.674	0.665	0.292
DBT Readiness	0.942	0.453	0.167
Design and Assurance	-	0.144	-
Operations	0.840	0.772	0.365
Security	0.246	0.073	0.014
Service Delivery	1.697	1.527	0.636
Testing	0.003	-	-

Key Events and Objectives Driving Activity and Cost in RY19/20

At the start of RY19/20 DCC completed the Enactment phase of the programme by finalising the procurement of three key service providers: the [REDACTED], the SMTP and the Core Systems Assurer (CSA). Justifications for the three procurements, which completed early in RY19/20, are included as annexes to this submission.

The activity across RY19/20 has covered the first two stages of the DBT phase (design and build), the first phase of testing (PIT), preparation for entry into SIT and design and build and preparation for the data migration solution. This activity falls within three of the seven workstreams identified in the CSSIP:

- Solution Delivery, covering development of:
  - The design baseline, build and PIT of the CSS by the [REDACTED]
  - The design baseline, configuration and PIT of the service management tools by the SMTP
  - Simulator tools to support testing by the SI
- Testing, covering preparation for SIT
- Data, covering the design, build and PIT of the CSS data migration tool, data provision by industry, the start of data analysis and cleansing cycles by the [REDACTED] and preparation for Data Migration Testing (DMT)

[13] The £0.15m materiality threshold is in use throughout the Price Control submission, along with the highlighting of material cells in tables. However, there is a zero baseline for the Switching programme. Therefore, we may use the materiality threshold to help explain the costs incurred within Switching but will not add any additional highlights.

As well as Programme delivery activities across these three workstreams DCC has also been managing the entire Programme and its service providers. In addition, DCC has been supporting Ofgem in the drafting of versions 2 and 3 of the REC which will come into effect when the CSS goes live.

The main deliverables and associated Product Descriptions worked on over the course of RY19/20 are:

- The CSSIA and CSSIP which set out the approach and plan for the DBT phase of the Programme
- Physical Interface Design Specification which defines the interfaces into the CSS that other Parties Under Integration (PUI) need to work with
- Simulator tools which will be used during testing by PUIs to simulate responses from systems not yet available for integration. Different tools were developed for use in PIT, SIT and User Integration Testing
- Defect Management Plan
- Requirements Traceability Matrix
- PIT Exit Criteria
- PIT Completion Report
- Test Readiness Report
- SIT Test Plan, Scenarios, Scripts and Test Data Requirements
- SIT and DMT test environments
- Data Migration Solution Design
- Data Migration Security Framework
- CSS Data Migration Business Validation Rules
- CSS Data Migration Detailed Reconciliation Process
- DMT Test Plan, Scenarios, Scripts and Test Data Requirements
- Cleansed data as a result of the first cycle of data analysis and cleansing

Drivers for Costs Incurred – Resource

The Programme has delivered to plan across the whole of RY19/20. However, expenditure on staffing was lower than anticipated in the business case.14 This is largely attributable to delays in recruitment (a key reason being the difficulty in finding good calibre candidates, including those with the necessary niche skills) resulting in an underspend of [REDACTED].

It should be noted that there will be changes in resource over the next two Regulatory Years as a result of a decision taken by Ofgem to delay the start of UEPT, which was due on 7 September 2020, by six months. This decision was taken at the request of industry which needed to divert resources away from the Programme to address the challenges of Covid-19. As a result of the decision, DCC and its service providers are supporting Ofgem in the re-planning of the Programme with a view to re-baselining the Programme Plan at the end of September 2020, by which time the impact on DCC resources and those of its service providers will be known.

4.1 Design, Build and Test

In managing the Programme's two key service providers, the SI and the [REDACTED], the DBT sub-programme has been responsible for overseeing their work and approving key deliverables prior to submission into Programme governance. The main deliverables which these service providers have worked on over the course of RY19/20 are:

- The CSSIA and CSSIP, which were developed by the SI
- The Physical Interface Design Specification, which was developed by the [REDACTED]
- Simulator tools for use during testing, which were developed by the SI
- The Developer Portal, which was developed by the [REDACTED], to provide access to design documentation required by PUIs in order to amend or develop their systems

[14] The programme does not have a regulatory baseline to compare cost against. Instead, we compare, on occasion, incurred costs to the forecast staff costs contained within the DCC Internal Business Case for the Design, Build and Test Phase of the Switching Programme, https://www.smartdcc.co.uk/media/3222/dcc-ibc-for-the-dbt-phase-of-the-switching-programme-v11.pdf. The business case will be updated as a result of the managed re-plan.

- Design, build and PIT for the CSS, which was undertaken by the [REDACTED]
- Defect Management Plan, which was prepared by the SI
- Requirements Traceability Matrix, which was prepared by the SI
- PIT Exit Criteria, which was prepared by the SI
- The PIT Completion Report, which was prepared by the SI
- Test Readiness Report, which was prepared by the SI
- The SIT Test Plan, Scenarios, Scripts and Test Data Requirements, which were prepared by the SI
- The SIT and DMT test environments, which were put in place by the [REDACTED].

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. This team was not impacted by recruitment delays, as active management and allocation of the resources ensured it was appropriately staffed from the DBT Readiness sub-programme in the Enactment phase.

Activities driving change in resource in RY20/21 and RY21/22

As noted earlier, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the DBT sub-programme the impact will be seen primarily in RY21/22 since resources will be required to manage the SI and [REDACTED] which will be continuing to work through the DBT phase longer than was originally anticipated. Depending on the outcome of the re-planning, it is possible that some activities in RY20/21 will be moved into the following Regulatory Year.

4.2 Operational Readiness

At the start of RY19/20 the Operational Readiness sub-programme continued to support the procurement of the SMTP. This involved evaluating Tender and Best and Final Offer (BAFO) submissions from the bidders, attending moderation sessions to support the selection process and attending presentations from the shortlisted bidders.

On completion of the procurement the sub-programme took on responsibility for the management of the SMTP, including overseeing their work and approving key deliverables prior to submission into Programme governance. It also worked with the DCC Operations function to develop the approach to live service delivery including service definitions and has been responsible for working with the SI on its deliverables related to business readiness.

The main deliverable which the SMTP has worked on has been the design, configuration and PIT of the ServiceNow platform which will provide the service management system (SMS) and self-service portal for Switching. The main deliverables of the Operations Readiness sub-programme team have been:

- Service Design
- The external physical interfaces design for the SMS
- SMS integration requirements.
- Operational Testing processes and procedures document.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Operational Readiness sub-programme was particularly affected by delays in recruiting business analysts to work on the sub-programme in the first half of the Regulatory Year.

Activities driving change in resource in RY20/21 and RY21/22

As noted previously, the managed re-plan will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Operational Readiness sub-programme the impact will be seen primarily in RY21/22 since resources will be required to manage the SMTP which will be continuing to work through the DBT phase longer than was originally anticipated, although due to the nature of the contract there are likely to be periods when the SMTP does not have any resources active on the Programme. Depending on the

outcome of the re-planning, it is possible that some activities in RY20/21 will be moved into the following Regulatory Year.

4.3 Data Management and Migration

The Data Management and Migration sub-programme has two main areas of responsibility:

- Obtaining data from industry parties and putting in place mechanisms to improve the quality of that data. In this role the key activities of the sub-programme have been:
    - Working with the SI [REDACTED] and [REDACTED] to define the requirements for data from PUIs and put in place the mechanism for transferring the data to the [REDACTED]
    - Overseeing and supporting the data analysis and cleanse activities undertaken by the [REDACTED]
    - Managing the work of an independent data quality benchmark organisation examining the quality of the data received from industry parties
- Preparation for and execution of data migration. In this role the sub-programme team has been responsible for managing the SI activities in preparation for DMT. This has included development of:
    - The Data Migration Solution Design
    - The Data Migration Security Framework
    - CSS Data Migration Business Validation Rules
    - The CSS Data Migration Detailed Reconciliation Process
    - The DMT Test Plan, Scenarios, Scripts and Test Data Requirements

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Data Management and Migration sub-programme was not impacted by recruitment delays as it had no unfilled vacancies.

Activities driving change in resource in RY20/21 and RY21/*22*

As noted earlier, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Data Management and Migration sub-programme the impact will be seen primarily through the shift of activities from RY20/21 to RY21/22.

4.4 Data Service Provider Interface

In managing [REDACTED] in the development of the interface between the CSS and the DSP the Data Service Provider Interface sub-programme has been responsible for overseeing [REDACTED] work and approving key deliverables prior to submission into Programme governance. The main deliverables which [REDACTED] has worked on over the course of RY19/20 are the design, build and PIT for the CSS/DSP interface. The sub-programme team has also worked with DCC's Regulatory and Test Assurance teams to ensure that appropriate arrangements are in place for the governance around the development of this interface, which involves working with DCC's Test Assurance Board and the SEC Panel's Test Advisory Group.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Data Service Provider Interface team comprises only a part time programme manager and a project manager and was not affected by delays in recruitment.

Activities driving change in resource in RY20/21 and RY21/22

As noted above, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Data Service Provider Interface sub-programme, the impact will be seen primarily through the shift of activities from RY20/21 to RY21/22.

4.5 Commercial, Regulatory and Engagement

At the start of RY19/20 this sub-programme was focused entirely on completing the procurement of the remaining service providers for the Programme. In this role it managed the evaluation of Tenders and BAFO submissions, ran moderation sessions to make selection decisions, arranged bidder presentations, took selection decisions through DCC governance, managed the contract negotiations with the preferred bidders and prepared the final Award Recommendation Reports.

As the contracts with service providers were put in place the sub-programme evolved to take on the responsibilities it will retain for the remainder of the DBT phase:

- Commercial management of DCC's service providers on the Switching Programme. In this role the sub-programme is responsible for contract and supplier relationship management of all service providers, including managing the commercial aspects of Change Requests;
- DCC's input to the development of the enduring REC. In this role the sub-programme manages DCC's response to Ofgem consultations on the drafting of the REC and is providing input to technical specifications that will be included in the enduring REC, including the performance regime, the change management schedule and the Switching Operator service definition;
- Engagement with DCC's stakeholders on the Programme. Key deliverables around stakeholder engagement have been the stakeholder engagement strategy, the stakeholder engagement approach and plan which is updated on a regular basis, both formal and informal stakeholder engagement events such as the Switching Industry Summit and a regular survey into stakeholder satisfaction.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Commercial, Regulatory and Engagement team was impacted by a delay in recruiting the full complement of commercial resources to support the Programme until the second half of the year, a delay in recruiting a Communications Lead and the remaining vacancy, despite active recruitment, created by the unfilled Stakeholder Engagement Manager role created when the previous incumbent left at Christmas 2019.

Activities driving change in resource in RY20/21 and RY21/22

As noted earlier, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Commercial, Regulatory and Engagement sub-programme the impact will be seen primarily through the potential shift of activities in support of the development of the enduring REC from RY20/21 to RY21/22.

4.6 Design Integrity

The Design Integrity team is responsible for assuring the completeness of the E2E design including validation of the PUI designs in preparation for entry into SIT. A further part of its role is to maintain the design documents and update them in line with changes agreed through the change control process, including completing quality assurance and also to work with the SI's design team to resolve design issues.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Design Integrity team was impacted by a delay in recruiting business analysts to the team.

Activities driving change in resource in RY20/21 and RY21/22

As noted earlier, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Design Integrity team, the impact will be seen primarily through activities continuing through a longer than planned DBT phase. Depending on the outcome of the re-planning, it is possible that some activities in RY20/21 will be moved into the following Regulatory Year.

4.7 Test Assurance

The Test Assurance team is responsible for assuring the testing undertaken by the SI. In RY19/20 the focus has been primarily on the SI's activities in preparation for SIT and later test phases which has included reviewing the CSSIA and all the test artefacts produced by the SI.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The Test Assurance team was impacted by a delay in recruiting test analysts to the team.

Activities driving change in resource in RY20/21 and RY21/22

As noted earlier, the managed re-plan will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

For the Test Assurance team, the impact will be seen primarily through the delay in testing from RY 2020//21 to the following year.

4.8 DCC Leadership

The Programme is managed by the DCC Leadership team which comprises the Programme Director, two Deputy Programme Directors and programme and project managers. The Programme Management Office Team is also part of the overall DCC Leadership team.

Activities driving change in resource in RY19/20

As noted earlier, expenditure on staffing was lower than anticipated across the Programme. The DCC Leadership was impacted by a delay in recruiting a Deputy Programme Director responsible for Delivery, although this post was filled by extending the contractor filling that post due to there being no suitable alternatives.

Activities driving change in resource in RY20/21 and RY21/22

As noted earlier, the managed re-plan as a result of Ofgem's decision to delay the start of UEPT by six months will potentially impact on the DCC resourcing model in both RY20/21 and RY21/22.

4.9 Drivers for Costs Incurred – Non-Resource

4.9.1 Summary

There were a limited number of non-resource procurements within the Switching programme within the year 2019/20. The largest category of incurred costs was for legal advice and support. The breakdown is provided below.

Table 37: External services material variance for the Switching programme

	Incurred (£m)	RY 19/20	RY 20/21	RY 21/22
	Total Incurred External Services	**0.176**	**0.324**	**0.111**
	Variance (£m)	**RY 19/20**	**RY 20/21**	**RY 21/22**
	Total Variance External Services	**0.176**	**0.324**	**0.111**
GL	**Variance**	**RY 19/20**	**RY 20/21**	**RY 21/22**
ES	Legal advice/support	0.163	-	-

4.10 Legal advice / support

Driver for the Procurement

In RY19/20 Switching only incurred non-resources spend over £0.15m relating to legal support to complete the procurements at the end of the Enactment phase. This was the continuation of a contract

with [REDACTED] which was put in place in RY18/19 and was explained as Switching Legal support within the Price Control submission for RY18/19.

Securing Value for Money

Explained as **Switching Legal support** within the Price Control submission for RY18/19.

Switching External Costs

DCC's approach to contract management under Switching is consistent with our licence mandate to act in an economic and efficient manner. DCC also adheres to a good practice management framework, which allows DCC to deliver to time, quality, requirements, and the best economic value against a complex mix of contracts. Within DCC, the contracts managed for Switching arise from various procurement routes, each with their own management approach that addresses their level of complexity. The Fundamental Registration Service Capability (FRSC) Contracts (which include the [REDACTED] contract) are the most complex and require a management approach that would not be appropriate for most other Service Providers.

Collaboration with our Service Providers is ultimately the best route for a successful and economic delivery. DCC will continue to work closely with our key Switching Service Providers to develop and manage improvements, changes and priorities.

New Contract Procurements

Procurement of three of the four key service provider contracts, the [REDACTED], SMTP and CSA were completed in the first quarter of RY19/20. The justifications for each of these are included as annexes to this submission. The contract values are set out in below.

Table 38: New Contracted External Spend in RY19/20

Incurred (£m)	RY 19/20	RY 20/21	RY 21/22
Total Incurred External Services			
[REDACTED]	2.287	0.758	0.723
[REDACTED]	1.161	1.230	0.415
[REDACTED] [REDACTED]	3.784	7.577	3.017

5 Network Evolution

5.1 Purpose, Scope and Structure

The Network Evolution Programme focuses on the future of DCC operations in the smart metering environment. It looks at how new processes, systems and technologies can improve the live service, reduce the operating costs of the DCC system, and, above all, secure the continuity of a critical part of the UK's national infrastructure.

The Network Evolution programme is driven by advances in digital technology which continue to reshape the energy landscape. We must make sure that the DCC Network keeps pace with and anticipates that change, while also maintaining continuity of service to the energy industry as contracts with service providers expire. These issues are becoming more urgent for a variety of reasons:

- The contract for the provision of the Data Services Provider (DSP) with [REDACTED] is coming to an end. Even with the maximum of three, one-year extensions it must expire by October 2024.
- The 2G/3G network will reach obsolescence in around 2030. The existing 2G/3G networks, in use in the South and Central regions, have been superseded by the introduction of 4G networks, with 5G on the horizon. There is a high probability that the older networks will no longer be supported or maintained in the medium term and DCC will need to modernise its communications provisions accordingly. SMETS1 and SMETS2 assets have a 15-year life, so

the earlier an enduring technology can be made available in the ecosystem, the lower the amount of scrappage and the longer the economic life of assets.
- BT's contract for the Smart Metering Key Infrastructure (SMKI) security service, also known as Trusted Service Provider (TSP), is due to expire in 2021.
- There is a continuing need to drive competition within the supply chain to reduce costs, improve service and accelerate continuous improvement.

The programme aims to ensure that customers are obtaining value for money at all times and that opportunities for competition are identified so that all service providers are continually subjected to competitive pressures.

Key events and objectives driving activity and cost

The programme consists of four key workstreams:

- The re-procurement of the DSP is at the scoping phase, defining outcomes and critical success factors. The new DSP will be procured to be built, tested and deployed at the earliest opportunity and by 2024 at the latest.
- Comms Hub and Network is at the RFP stage. The aim is to get an initial next-generation communications hub to market in 2021 and the capability to upgrade this with further services such as roaming and switching soon after.
- The SMKI re-procurement is concluding an investigation phase including collaborative discussions with the National Cyber Security Centre (NCSC).
- Our test automation and robotics functions are currently running an active procurement exercise against an agreed design with a target deployment in December 2020. This will enable 24/7 working and a significant reduction in the time and cost to complete regression testing.

The programme is expected to deliver over the next three years. However, other than next-generation communications hubs and test automation, precise timescales are yet to be confirmed for these outcomes and more work is required on the approach to be adopted in each area.

5.1.1 Programme Structure

The programme comprises of four distinct sub-programmes:

- Network Evolution DSP: Designing and procuring data services which are secure and sustainable, with a reduced operating cost, capable of rapid and cost-effective change in response to market and customer demand. This work will include investigations into how cloud computing and microservices could contribute to a new design for DSP to de-risk the overall re-tendering activity.
- Network Evolution Communication Hubs and Networks: Designing and procuring future-proof Communications Hubs and Networks (CHandN). We require a technology with a longevity of at least 15-20 years so that the full benefit of CH assets' operational life is realised from the point of installation. It should also provide roaming and switchable capability to increase resilience and minimise industry costs and inconvenience to the end consumer.
- Network Evolution Security and SMKI: Procure a replacement or extension to the Smart Metering Key Infrastructure (SMKI) security (TSP) service in a cost-effective way. This programme is not yet active but will mobilise in RY20/21.
- Network Evolution Test Automation: Designing and implementing automated testing of the SEC releases to achieve faster and lower-cost testing.

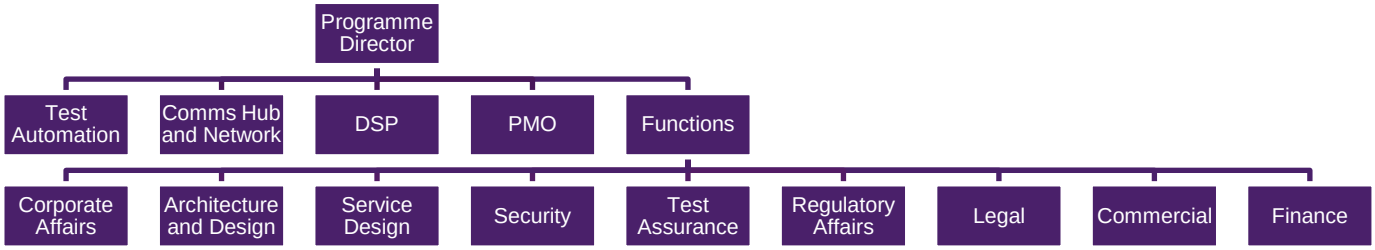
The Network Evolution programme structure consists of a Network Evolution Programme Director, a Deputy Programme Director and two Programme Managers heading up delivery teams for 4 of the 5 programmes (the 5th – SMKI – will be mobilised in RY20/21). These teams are made up of project managers with architects, business analysts, commercial business partners, design SMEs, regulatory analysts and others on a dedicated or shared basis as required. Where one programme utilises less than all of a person's time, the preference is to use the remaining time elsewhere in Network Evolution programme to benefit from synergies.

In addition to these programme teams, Network Evolution has a PMO under a PMO Manager that spans the whole of Network Evolution. The PMO ensures that programmes follow the DCC's Change Delivery Model and best practice on planning, risk and issue management, etc. PMO staff support programme and project managers in coordinating resource management across the programme.
The Network Evolution programme's structure also includes senior leaders from key functions within DCC with a remit to support across all of the programmes. These include:

- Director of Customer Engagement
- Director of Architecture and Design
- Director of Service Design
- Information Security Officer
- Test Director (Test Design and Assurance)
- Finance Business Partner
- Senior Regulatory Business Partner
- Procurement Manager (Commercial)
- Senior Legal Council

At the end of RY19/20, the programme's structure was as follows:

Figure 1 – Programme organisational structure



The table below provides the overview of the Network Evolution programme during RY19/20 and a description of the sub-teams within the structure.

Current Sub-team RY19/20	Description
Architecture and Design	Director of Architecture and Design – expertise on technical direction and definition of the technical solutions, platforms and methodologies to address current problems in delivering services and to facilitate the move to a future landscape that takes advantage of technical advances and that will persist for the next phase of DCC. Ensures the integrity of the DCC solution architecture, ensuring that new functionality and changes to the architecture are fit for purpose and comply with the standards necessary to maintain a robust, consistent and integrated technical infrastructure.
Service Design	Ensures that processes required to support the future DCC service and technical landscape are coherent, efficient and properly defined, including the processes that customers will need to use to access and operate DCC services.
Security	Responsible for making sure that any technical, data or process changes are compliant with all security protocols and tested appropriately. Owns the relationship with the National Cybersecurity Council (NCSC) and the SEC Security Subcommittee. for Network Evolution

Current Sub-team RY19/20	Description
Test Assurance	Test Director – expertise to ensure that testing methodologies and tools in the future DCC landscape are fit for purpose and utilise best practice.
Regulatory Affairs	Ensure that Network Evolution programme is in line with DCC Licence Conditions, and proposed changes are understood and supported by BEIS and Ofgem as applicable. In addition, particularly in its early phases, the Network Evolution programmes need to engage and consult heavily with customers and industry to understand existing problems and future needs and to ensure that DCC proposals are understood and supported. The Regulatory Affairs team is used across Network Evolution to lead on customer and SECAS engagement.
Legal	Guidance and oversight of legal and compliance issues and drafting of contracts. Detailed legal support is contracted to an external law firm under the oversight of the Senior Legal Council.
Commercial	Set commercial strategy and lead on supplier engagements and negotiations as Network Evolution will extend and replace the key SMETS2 foundations contracts. Ensure that all procurement conforms to the regulated conditions.
Finance	Finance Business Partner from CFO office – budgeting, forecasting and tracking of actual spend, support on business cases,

5.2 Cost Centre Variances

Network Evolution is a new programme, therefore there are no regulatory baseline numbers. As such, all incurred and forecast costs appear as a variance.

Variance by Network Evolution Project in the RIGs

The table below provides a breakdown of incurred and forecasted costs in the price control format i.e. mapping costs directly against the price control General Ledger codes (GLs). Non-payroll costs are explained within a subsequent section. Payroll and Recruitment are justified within the next section.

Table 39: Variance from the RIGs by GL

	(£m)			RY19/20	RY20/21	RY21/22
Baseline	**Total Network Evolution**			**-**	**-**	**-**
Incurred	**Total Network Evolution**			**0.819**	**2.421**	**1.736**
Variance	**Total Network Evolution**			**0.819**	**2.421**	**1.736**
	Payroll costs	PR	£m	0.483	2.133	1.653
	Non-payroll costs	NP	£m	0.005	0.086	0.083
	Recruitment	RC	£m	0.009	0.022	-
	Accommodation	AC	£m	-	-	-
	External services	ES	£m	0.285	-	-
	Internal services	IS	£m	0.036	-	-
	Service management	SM	£m	-	-	-
	Transition	TR	£m	-	-	-
	IT Services	IT	£m	-	-	-
	Office Sundry	OS	£m	-	-	-

Variance by Sub-Team

The table below shows the payroll variance by sub-team.
In RY20/21 and RY21/22, the major variances are in the Design and Assurance, Operations and Service Delivery teams.
The activities and events that are the primary drivers behind these variances are elaborated on in the following sections.

Table 40: Variance Cost by Sub-team

Network Evolution Payroll Costs	RY19/20	RY20/21	RY21/22
Variance	**0.483**	**2.133**	**1.653**
Commercial and Regulation	0.124	-	-
Design and Assurance	0.018	0.594	0.403
Operations	0.019	0.434	0.437
Security	-	0.112	0.112
Service Delivery	0.283	0.993	0.700
Testing	0.039	-	-

5.3 Drivers for Variance – Resource

All Network Evolution spend in RY19/20 is classified as variance because there were no forecast values submitted last year. However, the triggers for action described above (2G/3G sunsetting issue for Comms Hubs, DSP contract expiry) required the DCC to establish the programme and then create the structures that would allow significant activity the following year. The largest areas of spend in RY19/20 were Service Delivery (59%) and Commercial and Regulation (26%) with other areas playing a small supporting role.

5.3.1 Service Delivery

Service Delivery covers the Programme Director, Programme Managers, Project Managers and PMO required to put programme structures in place and mobilise activity, and to progress the Test Automation project through to design stage.

Activities driving change in resource in RY19/20

The programme team started small and added resources as required through the year, ending the year with a Programme Director, 2 Programme Managers and 4 Project Managers as well as PMO Manager and 2 PMO Analysts. Activities and outputs included:

- Network Evolution structure: Network Evolution was organised into four streams (Comms Hub and Networks, DSP, Security and SMKI, Test Automation).
- Timelines: very high-level outline plans have been created for each stream.
- Resource and Funding Requirements: we have identified types and numbers of people needed for each phase and put costs against those that provided input the RY20/21 Charging Statement and enabled DCC resource planning.
- Engagement Strategy: Strategy to ensure that customers and stakeholders are engaged and informed of Network Evolution overall objectives and strategy and with individual programmes.
- Significant activity on Comms Hub and Networks in the “investigate” stage.
- Manage the Test Automation project through the “identify” stage and procure the design.

Programme Principles

Network Evolution is about creating the future DCC landscape to best support customer needs in a flexible and cost-effective way. Work was completed in RY19/20 to identify the customer, commercial, security, data, technology and operations principles that will guide the programmes, as follows:

Customer	Commercial	Security	Data	Technology	Operations
-We will deliver a positive impact to our customers.	-We will put in place a commercial model that will enable a cost of ownership that is improved value for money. -Whilst ensuring that we retain maximum leverage with the suppliers	-We will evolve our architecture, to mitigate the continued increase in technology security risks and complexity of attack vectors.	-We will govern, store and provide data to an increased customer base.	-We will evolve our technology to mitigate the risk of future obsolescence, scalability and IPR constraints. -Whilst becoming flexible and reactive to serve innovators and new markets.	-We will evolve our technology ensuring that it is simple to support across our Customers, Partners and DCC. -Supportability is built into the design from the start.
In practice this means:					
- No disruption to operational performance managed via a phased transition - Improve value for money by introducing more flexible commercial models	- Complete transparency of costs - Low cost of change - Employ flexible commercial model. - Ensure optimum balance of supplier-customer power in contracts, whilst remaining attractive to the marketplace	- Our architecture will be evolved through aligning to NIST/ISO27001 Cybersecurity Frameworks	- We will manage our data connections and APIs to simplify and automate. - We will aggregate data silos to improve customer service.	- We will govern an agreed set of technology principles - Our technology will evolve over a number of delivery phases. - Phases will optimise risk and reward balance, to ensure public good.	- Supportability is built into the design from the start. - Customer journeys outcomes are what important, not at an individual application's performance. - Market Skills gap and lack of technical know-how for Digital solutions are proactively mitigated for DCC and Partners.

Activities driving change in resource in RY20/21 and RY21/22

In RY20/21 and RY21/22 the Service Delivery team will increase significantly as activity in the Network Evolution programme ramps up (a process which had started in late-RY19/20). In particular:

- The Comms Hub and Networks programme will move from the Investigate phase of the DCC's Change Delivery Model into the Shape phase and then into the Develop phase in RY20/21. Business Analysts and Architects will be required to define the requirements and designs and a lot of commercial resources will be needed to support the necessary procurements. In this period the business case will be produced, reviewed and submitted to BEIS and there will be a lot of engagement with industry (BEIS, SECAS, etc.) and customers. The programme will need project managers for this activity and the expanded PMO structure (now in place) to support it. In RY21/22 the programme will be in the design build and test phase.
- The Test Automation workstream will complete development and deploy to live during RY20/21. The level of Service Delivery resource and cost will be similar to current levels. The project will close early in RY21/22 with low activity in that year.

- The SMKI re-procurement workstream, is currently in the Identify stage with no Service Delivery people engaged. The requirements and plans for the programme will be identified during this phase and these will inform its requirements for other resources. It is envisaged that the programme will ramp up in RY21/22 and run through to RY23/24.

5.3.2 Design and Assurance

This covers the architects and design authority to create and assure the design of systems and processes to deliver the Network Evolution Programme.

Activities driving change in resource in RY20/21 and RY21/22

In RY19/20 there was minimal spend on Design and Assurance as Network Evolution was being mobilised but the forecast for subsequent years foresees significant activity in this area:

- In RY20/21 the Design and Assurance function will deliver designs for the 4G Comms Hub required to address the 2G/3G sunsetting issue.
- In RY21/22 designs will be created for the future generation of the DSP to take advantage of cloud computing and microservices.
- A Design Authority will be established to ensure coherence of designs across Network Evolution and consistency with BAU as required.
- There will be a requirement for ongoing engagement with the SEC Technical and Business Architecture Sub Committee (TABASC) to ensure that design options and selections are discussed and agreed with customers.

5.3.3 Operations

The DCC Operations team is involved in the programme to ensure that problems and challenges with current systems and processes are identified and articulated so that they can be addressed. The Operations team will also be responsible for advising on operational aspects of future design proposals and for engaging with industry on operational aspects of Network Evolution.

Activities driving change in resource in RY20/21 and RY21/22

There was minimal spend in RY19/20 as Network Evolution was only being mobilised but significant spend is forecast in future years to cover:

- The identification and articulation of problems and opportunities for improvement in current operations.
- Advise on design of new processes associated with future systems. This includes internal DCC processes by which customers access and operate DCC services and interact with DCC.
- Ongoing engagement with the SEC Operations Sub-Committee (SEC Ops) and other customer and industry engagements to ensure that processes being changed or introduced by Network Evolution are discussed and agreed with customers.

5.4 Drivers for Variance – Non-Resource

5.4.1 Summary

Network Evolution had two small procurements in the past year. However, only one, Test Automation Design, is above the materiality threshold of £150,000. The breakdown is provided below.

Table 41: Material variance for External Services in Network Evolution

	Incurred (£m)	RY 19/20	RY 20/21	RY 21/22
	Total Incurred External Services	**0.285**	-	-
	Variance (£m)	**RY 19/20**	**RY 20/21**	**RY 21/22**
	Total Variance External Services	**0.285**	-	-
GL	**Variance**	**RY 19/20**	**RY 20/21**	**RY 21/22**
ES	Test Automation Design	0.196	-	-

5.4.2 Test Automation Design

Driver for the Procurement

The DCC identified that efficiency improvements needed to be made to the regression testing conducted within the Smart DCC Metering ecosystem in order to deliver the planned programme of activity for 2020 to 2025.

A target was set to have 90% of tests automated across Pre-Integration Testing (PIT) and System Integration Testing (SIT), and to offer the automated framework as a service to users within User Integration Testing (UIT).

The Test Automation Framework was formally discussed as part of the Test Design Expert Group (TDEG) which includes representatives from Energy Suppliers, CSPs and the DSP, BEIS and Network Operators and DCC continues to provide information and report progress via this forum. Additional discussions have been held with TAG and TABASC to ensure our proposals reflect their views.

The Test Automation Framework will initially be developed to support SMETS2 SIT regression testing, as this will realise the greatest initial benefit. SMETS2 regression testing presently accounts for 76% of the costs incurred from the Data Services Provider (DSP) during SIT for SEC Modification releases. The Gartner and Baringa Audits both highlighted as one of their major recommendations that significant savings and improvements could be gained by automating the regression test pack.

Based on audit recommendations and TDEG support, and in line with the strategy on efficiency improvements, DCC considers significant benefits for our customers can be created from implementing a Test Automation Framework.

Securing Value for Money

DCC decided to conduct the procurement for the Test Automation Framework in 3 phases to ensure that the strongest suppliers could be selected for each phase and that the procurements for Phases 2 and 3 were informed by the output of the first procurement for the design phase – giving more information to suppliers to formulate their bids and to DCC to evaluate them. These phases are:

- Phase 1: Design
- Phase 2: Build and Test
- Phase 3: Maintain and Operate

For Phase 1, an RFP was issued to five Service Providers under DCC's Management Consultancy Framework (Lot 4.1 – Tools and Automation) on 28 June 2019. To explain the expectation for Phase 1, pre-RFP Service Provider engagements were carried out such that potential providers were familiar with DCC's requirements, allowing a more efficient process. The design was required to:

- Offer flexibility to operate under the present architecture and future architecture.
- Be able to be expanded later to cover additional services including SMETS1, PIT, UIT, ECOS.

Responses to the RFP were received from all 5 Service Providers on 15 July 2019. These were evaluated as per the agreed RFP evaluation criteria as follows:

Category and Split		Sub-category breakdown and splits	
Required capacity and relevant capability	**15%**		
Quality of Design	**70%**	Request Initiation (Adapter UI and XML)	15%
		Capturing evidence (Request Processing and Response Generation)	15%
		HAN Devices (Information Input and Capturing)	20%
		Reporting	10%
		Environments (able to use across environments with minimal change)	10%
Commercial	**15%**	Dun and Bradstreet Risk Rating	pass / fail
		Pricing Model	15%

Two Service Providers – [REDACTED] and [REDACTED] - were short-listed to enter the Best and Final Offer (BAFO) phase.

Assessment of the proposed designs concluded that combining aspects of the [REDACTED] framework design and the [REDACTED] robotic design to increase efficiency would provide the flexibility to meet the SMETS2 SIT requirements most economically and allow expansion to cover other test phases and programmes (including SMETS1). It was therefore decided to procure both of the Service Providers to contribute to a hybrid design. Design activities started in September 2019 and concluded in March 2020. The contracts placed for Design were:

- [REDACTED] - [REDACTED]
- [REDACTED] - [REDACTED]

Once the design (Phase 1) is completed two further procurements will be run:

For Phase 2, An RFP to undertake the Build and Test of the agreed design will be sent to the two Service Providers involved in design. After evaluation of the RFP responses one of the two Service Providers will be selected for Phase 2.

For Phase 3, both Service Providers will again have the opportunity to bid for the Run and Operate phase.

The table below provides a brief summary of the procurement approach and savings realised through DCC.

Table 42: Test Automation Design Procurement Evaluation Breakdown

Procurement - Test Automation Design		
Number of Bids received	5	
Number of Bids shortlisted	2	
Strengths of Selected Bidder	Assessment of the proposed designs concluded that combining aspects of the [REDACTED] framework design and the [REDACTED] robotic design to increase efficiency would provide the flexibility to meet the SMETS2 SIT requirements most economically and allow expansion to cover other test phases and programmes (including SMETS1). It was therefore decided to procure both of the Service Providers to contribute their parts of the hybrid design.	
Challenge by DCC	**Initial Price**	**BAFO**
	[REDACTED]	[REDACTED]

6 Enduring Change of Supplier (ECoS)

6.1 Purpose, Scope and Structure

Enabling energy customers to change supplier securely and easily is one of the fundamental purposes and benefits of the smart metering rollout. It is underpinned by DCC's change of supplier process. An essential component of this is the replacement of certificates on devices (primarily meters) that identify the responsible supplier. When the original technical and security architecture for DCC was developed, within the government's Smart Metering Implementation Programme, it was decided that DCC should implement a temporary solution for change of supplier, known as Transitional Change of Supplier (TCoS). The rationale was to avoid requiring additional change from energy suppliers during the mass roll-out of smart meters.

While designed and successfully operated at a very high standard of security, TCoS is not fully aligned with the Trust Model for smart metering, primarily because TCoS functionality is provided by the Data Service Provider (DSP). It was always intended that TCoS should be replaced as soon as practicable by an Enduring Change of Supplier process, referred to as ECoS. In order to introduce a greater degree of separation between the Change of Supplier (CoS) and the DSP.

In May 2019, BEIS wrote to SEC Parties and other stakeholders, consulting on a proposal to direct DCC to provide ECoS arrangements covering both SMETS2 and enrolled SMETS1 meters. This was accompanied by a solution review, prepared by DCC, of options for ECoS. The BEIS consultation letter endorsed Option 2 in the DCC solution review recommendation.

Option 2 recommended involving DCC in the procurement of a separate centralised party to operate the Change of Supplier service and sought views on a proposal to direct DCC to implement this solution. This option requires very little change from DCC's energy supplier customer. Once implemented, customers' interaction with the ECoS system to effect a change of supplier event will be very similar to their existing interactions with TCoS.

In August 2019, BEIS directed DCC, through Condition 13A (LC13A) of the Smart Meter Communications Licence, to produce an implementation plan for the ECoS arrangements.

The ECoS delivery plan encompasses procurement of service providers for:

- The CoS party function, in three separate lots for:
  - Design Build and Test (DBT)
  - Hosting
  - Service Management

- The design, build and test of the ECoS service including testing the connection to the new Central Switching Service
- Developing new functionality in the DSP to work with the new CoS Party
- Arrangements for ECoS certificates to be added to devices at manufacture (rather than TCoS)
- Management of the migration of devices from using TCoS certificates to ECoS certificates. Change of supplier arrangements for both SMETS1 and SMETS2 meters are included

The scope for the delivery of the solution was approved by BEIS in August 2019 and included:

- Procurement of CoS Party
- Completion of Design, Build and Test of Enduring CoS arrangements (ECoS), and their integration into DCC total system including communication with the Central Switching Service (CSS)
- Managed migration of installed devices from TCoS to ECoS credentials and arrangements for adoption of ECoS credentials by the supply chain
- [REDACTED] discontinuation of TCoS arrangements
- Managed transition of Service into Live operation

LC13A Consultation

As mentioned above, BEIS directed DCC, through Condition 13A (LC13A), to produce an implementation plan for the ECoS arrangements. Between August 2019 and January 2020, DCC produced a draft delivery plan for the design, development and implementation, of the systems, processes and procedures intended to comprise the ECoS arrangements (the delivery plan).

In January 2020, DCC issued a draft delivery plan for consultation to the SEC Panel and all SEC Parties. On 31st March 2020, DCC submitted the final delivery plan, and the summary of consultation responses, and received approval from the Secretary of State.

Overall Approach to Stakeholder Engagement

DCC's approach to delivering an outstanding customer experience is to engage with its customers through a number of channels. These include digital, traditional communications, Government and Industry bodies and a number of tailored bilateral and multilateral engagements and industry events.

Engagement with all stakeholders will occur throughout the lifecycle of the project. DCC will ensure stakeholders are kept informed and are adequately consulted through various channels and governance groups including engagement with the SEC Panel and its sub-committees, particularly TAG, the SEC Ops group, the SSC and the SMKI PMA as relevant, and on programme progress with the Implementation Managers Forum (IMF), the Smart Metering Delivery Group (SMDG), and other transitional bodies as relevant.

All Stakeholders will be kept informed on DCC's progress against the plan through regular reporting, and stakeholder feedback from engagement activities will be considered in the development and rollout of the project. DCC will continue to evolve and develop stakeholder engagement to ensure full transparency, stakeholders are kept informed, have an opportunity to shape proposals, and can also help guide DCC's direction with the use of surveys.

Engagement on ECoS will take place over 3 phases: procurement; design build and test; and migration. The RFP was distributed to potential suppliers on 28 April 2020 with a 45-day supplier response period, then proceeded to evaluation and contact negotiations.

Key events and objectives driving activity and cost

DCC's delivery plan for the key phases is set out, described and published for consultation15. The activities undertaken during the current regulatory year were those procurement activities necessary to support the three separate lots mentioned above.

DCC undertook a market engagement exercise between 11 November and 6 December 2019, publishing a Request for Information (RFI) to the market to ensure that any activities undertaken would

[15] Consultation on the delivery plan for Enduring Change of Supplier, https://www.smartdcc.co.uk/media/3544/consultation-on-the-delivery-plan-for-enduring-change-of-supplier.pdf

meet the needs of DCC's stakeholders. This RFI built on the exercise in November – December 2018 that informed the selection of the preferred option. The RFI objective was to inform the Request for Proposal (RFP) requirements, determine supplier capabilities, stimulate interest in the upcoming RFP, obtain updated rough order of magnitude costs and help develop a shortlist of prospective service providers to invite to participate in the RFP.

Work on preparing the requirements for the RFP is being developed in parallel with consultation on this LC13A plan. Subject to any changes to the plan following consultation, and with BEIS approval, this should enable DCC to issue the RFP in 2020. We would expect to complete the evaluation, final negotiations and contract signing for the DBT lot by January 2021, with awards of the other lots following on in April and May 2021 respectively.

In planning this timeline, DCC has taken on board lessons learned from other recent procurements, aiming to ensure there is sufficient time to properly define the requirements, and to work through the evaluation and negotiation process thoroughly before contract award.

Future activity driving resource and non-resource profiles is mostly related to the LC13a Plan and its approval. The requirements have been captured and the RFP for ECoS was distributed to suppliers on the 28 April 2020. The key delivery milestones are:

Table 43: Future timeline for defined phases of ECoS

Phase	Estimated start date*	Estimated completion date*
ECoS Party Procurement	April 2020	January 2021 (Design, Build and Test) April 2021 (Hosting Services) May 2021 (Service Management)
ECoS Design phase	February 2021	April 2021
ECoS Build phase	May 2021	October 2021
ECoS Test phase	October 2021	June 2022
ECoS Go-Live approvals	May 2022	June 2022
ECoS Service Live	June 2022	June 2022
TCoS to ECoS migration	June 2022	April 2023

* Please note that these are indicative dates.

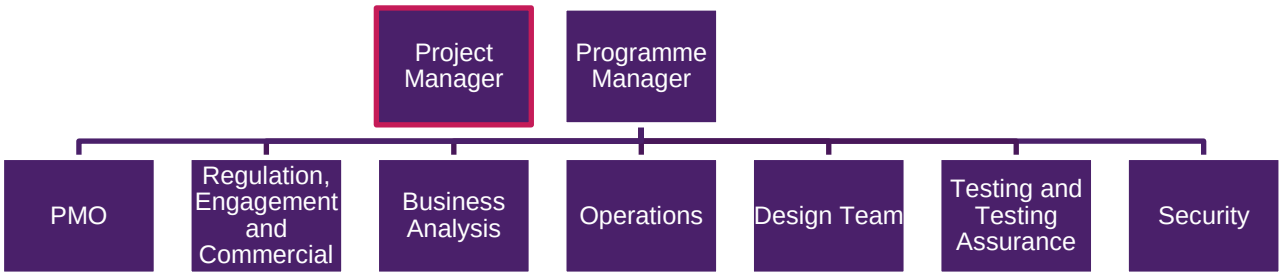
6.1.1 Cost Centre Structure

DCC has a substantial portfolio of other programmes to be delivered during 2020-2023, each with its own requirements in terms of human and other resources. Following the direction from BEIS, the plan for ECoS has now been built into DCC's portfolio management processes to ensure that the necessary resources are identified and made available, and any conflicting demands managed. There is no contention between the planned dates for ECoS and the planned dates for any other baselined programme that would obstruct delivery in accordance with this plan. Active management of these issues will continue as timings and requirements are further refined with the progress of the project. To assist this, the environments' schedule will be shared at the appropriate governance fora.

Functional SME input for ECoS is absorbed by the greater DCC cost centres. During RY19/20 resources have been focused around procurement, Design, Build and Test and TCoS to ECoS migration.

The organisational structure of the programme was a sole Project Manager (at the end of RY19/20), moving into the broader structure shown in the figure below for R20/21.

Figure 2 – Programme organisational structure



An approximate mapping of the ECoS Programme is set out in the table below.

Current Sub-team RY19/20	Description
Programme Manager	Oversees the delivery of the ECoS Programme and its phases as identified by the LC13a Delivery Plan.
Project Manager	Supports the Programme Manager. Delivers respective programme elements.
PMO	Provides project assurance and general project support.
Regulation, Engagement and Commercial	Further supports the whole lifecycle, and distinct phases, of the project including external engagement and regulatory matters.
Business Analysis	Comprehensively captures the requirements of the solution to be delivered.
Operations	Designs and manages the structure of the service transition. Manages and operates the Technical Operations Centre (TOC).
Design Team	Provides solution architecture and planning of initial design.
Testing and Test Assurance	Manages and provides testing services of the designed solution and assurance of system interoperability across service providers.
Security	Specific design, build, and testing of security requirements to ensure that the process is designed so that data remains secure through the change of supplier process.

6.1.2 Cost Centre Variances

In RY19/20, there were no variances in either resource or non-resource costs. Therefore, there is no justification of material variance in this submission.

7 Market-wide half-hourly settlement (MHHS)

7.1 Purpose, Scope and Structure

Market-wide half-hourly settlement (MHHS) is an Ofgem-led programme, with Elexon as its key delivery partner. It builds on changes to require half-hourly settlement (HHS) for medium to large non-domestic consumers and to facilitate elective HHS for domestic and smaller non-domestic consumers. Half-Hourly settlement will facilitate more accurate reconciliation of generation to consumption volumes for all electricity users. This is a vital step in the UK's transition to a flexible energy system by enabling smart tariffs and demand-side response linked to home energy management, smart appliances and electric vehicles. Extending HHS to domestic consumers will reduce the length of the settlement process and drive improvements to the data processing and data aggregation, as well as secure the expected

environmental benefits of smart metering. MHHS can play a part in the move to a more flexible electricity system which could save the UK £17-40 billion by 2050.16 MHHS is expected to drive significant specific benefits17 including:

- Promoting innovation and competition in the energy market and giving consumers the opportunity to make savings on their energy bills, e.g. by paving the way for suppliers to provide and encourage take-up of time of use and other types of smart tariffs.
- Helping create the right environment for more demand-side response, leading to a more efficient and secure energy system.
- Helping suppliers forecast demand more accurately, strengthening competition and reducing costs; and make the settlement process faster and more efficient, reducing barriers to entry to the energy market.

DCC's involvement in the programme for 2019/20 was to be limited to:

- Supporting the decision making for the Half-Hourly settlement target operating model (TOM), including the provision of demand modelling data.
- Responding to formal consultations.

Key events and objectives driving activity and cost

Ofgem is currently evaluating the costs to industry of implementing HHS. To do this, Ofgem has been a running a series of engagements with the market during 2019 and 2020 with results expected by the end of 2020.

During the information gathering phase, DCC is working with Ofgem, ELEXON and SECAS to resolve some key technical design challenges for DCC to support the MHHS TOM. It is envisaged that these challenges will be resolved during Summer 2020 and that DCC will be in a position to provide a clearer view of the impact on the system design and operational capacity and service in its response to the Impact Assessment issued by Ofgem in May 2020.

DCC is currently (RY19/20) incurring low MHHS-related costs. The workload is being absorbed by current staff resources, hence why there are no variances showing in this section. We will continue to engage customers on costs as the demands on DCC become clearer and, following our customer engagement strategy, we will ensure we seek input as appropriate during the development of the programme, following our customer engagement strategy.

Timescales and engagement

- Target Operating Model Transition consultation – summer 2019.
- Ofgem Request for Information – summer 2019.
- Ofgem Impact Assessment and Full Business Case – ongoing.
- Service procurement – likely to be from 2021-22.
- Service operational – from 2024 (needs full roll out of smart meters).

7.2 Cost Centre Structure

As in RY17/18 and RY18/19, work on this has been undertaken by two permanent members of DCC staff working part-time on DCC's response to Ofgem's consultation and on the TOMs. These resources were assigned from DCC's Regulatory Affairs team and responded to the consultation as part of their

[16] Carbon Trust & Imperial College, An analysis of electricity system flexibility for Great Britain, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/568982/An_analysis_of_electricity_flexibility_for_Great_Britain.pdf

[17] Ofgem's expected range of net benefit to GB consumers, covering the period 2021 to 2045, is £1,607m-£4,557m.
MHHS draft Impact Assessment, https://www.ofgem.gov.uk/system/files/docs/2020/05/mhss_draft_impact_assessment.pdf,

required business-as-usual activities18. As we do not have a dedicated team working on MHHS, we are not including an organisational chart.

In RY2019/20, the responsibility for MHHS was transferred to the Operations cost centre. The team has utilised less than 0.3 FTE Project Management, and 0.1 FTE Architect and Regulatory support across the period. The project has maintained one FTE, Director of Design, to host the industry design sessions and to take the DCC perspective of MHHS offline with the regulator and other stakeholders to optimise the potential impact on DCC's systems and services. We have undertaken training to ensure staff in areas impacted understand the theory and expected process for MHHS and highlighted potential conflicts in new work.

7.3 Cost Centre Variances

In RY19/20, there were no variances in either resource or non-resource costs. Therefore, there is no justification of material variance in this submission.

[18] The expected Ofgem business case may provide the justification for DCC to create a separate programme for MHHS.