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External Costs (R2.0, SEC Releases, Enterprise change and SMWAN Coverage Data Base)

External Costs form part of our allowed revenue. They are the costs incurred by our Fundamental Service Providers (FSPs), including those that support our core SMETS2 activities as well as the provision of our more recent services under the SMETS1 and Switching Programmes. All FSPs that were appointed to support the delivery of our core data and communication services for smart metering were sourced on a competitive basis by government. They comprise the data service provider (DSP), **CGI**, and the two communication service providers (CSPs), **Arqiva** and **Telefonica**. More recently, over the course of the past 18 months, DCC has procured services to support the SMETS1 and Switching programmes. In procuring these services, DCC has sought to source them in the most economic and efficient manner to ensure that we continue to offer value for money and good quality service for our customers.

DCC delivers its services by procuring and contracting with external service providers. Generally, these services include technology solutions, consultancy, recruitment and auditing. For the avoidance of doubt, the sections below cover external costs incurred by our FSPs. Over the course of RY19/20, the costs associated with the delivery of these services accounted for approximately 73% of our total costs. The recent introduction of new services, SMETS1 and the Faster Switching's Centralised Registration Service has seen our supply chain network grow significantly to a total of 38 external service providers at the end of RY20/21.

As part of the process of delivering services in an environment that is subject to change, DCC has to agree contractual variations with its providers – change requests (CRs) and project requests (PRs). Approximately 284 CRs and 144 PRs have been progressed over the course of the RY20/21. We also observe a significant increase in procurement activity compared to previous years – in total 97 procurements were completed during RY20/21 compared to 67 procurements in RY19/20.

This level of change i.e., in terms of CRs/PRs is an increase on previous years (400%) and this is due to more providers being used and programmes of activity exiting the design and build stages and entering the service provision phase where many assumptions that existed at the time the contracts were awarded have now changed. The level of increase is partially explained by the introduction of the new service providers for SMETS1 and Switching as well as the iterative and agile approach that was adopted for SMETS1, which meant that the scope of the Programme was re-adjusted throughout with an immediate impact to delivery timescales as a direct result.

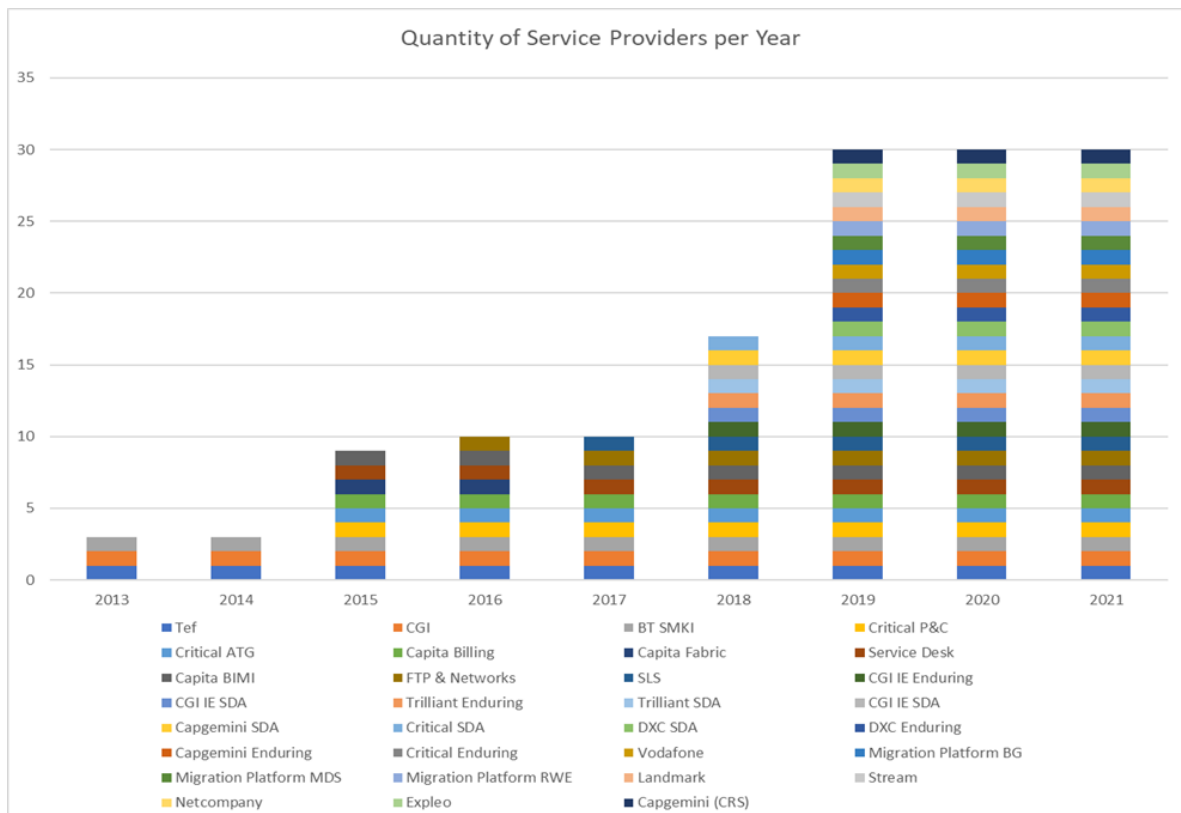


Figure 1: DCC's evolving supply chain network

DCC is very mindful that the costs we incur to develop, test and run the smart metering system are borne by our customers. We are therefore fully cognisant of our duty to identify and realise efficiencies across all parts of the business on a continuing basis whilst simultaneously maintaining steady progress against our programmes and quality of service.

Over the years, DCC has built up an extensive level of knowledge and expertise around the management of external service providers. The experience that we have built has already allowed us to realise significant cost savings through long-term efficiencies across several areas, ranging from consolidating test facilities to the re-financing of external set-up costs, as well as through continuously introducing improvements to our internal systems and processes. As we have grown and matured over the years, improvements have been made to support and realise efficiencies and savings across the business. More specifically, our commercial efforts have yielded contracted negotiated savings of £15m, of which £4.4m as a result of negotiations regarding testing services; £3.1m linked to SMETS2 specific contract negotiations, including CRs; £7.9m cashable savings driven by miscellaneous contract negotiations and internal initiatives designed to challenge existing costs and processes.

1. Change Request and Project Request Costs

The following sections lay out a summary of all the external costs that were incurred together with a detailed view of all material external Change Request (CR) and Project Request (PR) costs that were incurred in RY20/21. These costs are grouped by the activity or programme that the CR/PR is linked to. It should be noted that all external costs in relation to the SMETS1 and Switching Programmes, including the procurement of new FSPs as well as costs associated to change requests and project requests, are set out in other sections of our submission. These sections provide a consolidated view and justification of all costs that were incurred against the respective Programmes.

Over the course of RY20/21, DCC has incurred a total of **£458m** in external costs. The increase in costs compared to last year is largely driven by activities in the following areas:

Program	(£m)
SMETS2	363.8
SMETS1	94.3
Switching	24.2

Table 1: Cost Breakdown of Programmes

External costs for both the SMETS1 Programme, the Switching Programme and the ECOS Programme are excluded from this section but instead described in other parts of this submission. The baseline SMETS2 external costs variances are mainly driven by change request and project requests that support:

- Extended cover for testing and fixes on the R2.0 Programme
- The delivery of the November 2020 SEC release; and
- Enhancements to Testing Services as well as refinements to the granularity of the SMWAN Coverage Database.

The materiality threshold for external core activity costs is the same as in previous years i.e. £1m. Also, contrary to previous years, we have excluded from the narrative the timetables for each CR/PR. Instead, we have consolidated this information into the supplementary finance schedules, which are attached to this submission.

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
R2.0			
PR1170	Covers R2.0 Dual Band DIT Re-entry validation, testing and associated activities for all 3 Comms Hubs WNC, TOSH and EDMI from the 1st of December 2019 till the end of DBDIT Phase.	CGI TEF (C&S)	BEIS / R2.0 delivery plan
CR1407	Provides commercial cover for the most recent mandated update to GBCS version 3.2.	ARQ	BEIS
November 2020 SEC Release			
CR1294	November 2020 SEC Release post PIT activities	CGI ARQ	SEC Mod
Enterprise changes			
CR1209	Implements refreshed B-Stream Test Environments UIT-B and PIT-B based on the new technology being used for the refreshed Production and A-Stream test environments.	ARQ	DCC
PR1243	Relates to the services supplied by the Production Support Team to support SMETS1 and SMETS2 PST, and SMETS2 Soak Testing as part of the Production Proving Test Approach	CGI	DCC

PR1267	Initially the commercials for SMETS1 PST were covered by the release CR or PR but have been included in PR1243 since April 2020. PR1267 provides cover for the six (6) months from 1 October 2020 until 31 March 2021.	ARQ	DCC
CR1321	Over the past two years, DSP Testing Services for UIT was covered by CR279 and subsequently CR1287. This CR includes a continuation of UIT Testing Services CR1287, which is to be extended to cover both SMETS2 and SMETS1 and also include support for Migration Device User System Test (MDUST).	CGI	BEIS
SMWAN Coverage			
CR1028	CR1028 seeks to assess the impact of a refinement to the granularity of the SMWAN Coverage Database for CSPN	ARQ	DCC

2. Release 2.0

2.1 CGI – PR1170 (Dual Band DIT Re-start and Completion)

Drivers and Scope

As part of our RY19/20 price control, we explained that due to the limited availability of working DBCH meters, there had been a delay to some elements of previously planned DIT scope for R2.0. PR1089¹ was previously raised to provide continued but limited cover for R2.0 DBCH testing activities. PR1170 supports the re-start of DIT activities that had previously been planned but suspended due to the lack of working Comms Hubs. More specifically, PR1170 provides the additional support that is needed to conclude DIT for DBCHs with and without NXP based meters, respectively supplied by Meter Manufacturers 1 and 2 i.e. MM1 and MM2. The scope of PR1170 can be summarised as follows:

- Preparation activities for testing activities by Meter Manufacturers 1 and 2 i.e. MM1 and MM2
- Execution of MM1 and MM2 meter tests to complete MM1 and MM2 testing
- Execution of MM1 and MM2 meter tests to complete Operational Confidence Testing across all three Comms Hubs
- Execution of Non-Debug Comms Hubs if required and directed by DCC
- Support for R2.0 Single Band Comms Hub ARQ 2.02.4 defects arising out of UIT-A testing, prior to its go-live, if required and directed by DCC.

Securing Value for Money

The initial price for PR1170 (Dual Band DIT Re-start and Completion) was calculated to be REDACTED by CGI DSP, covering an 8-month period between December 2019 and July 2020. This SOW V1.0 included 4,883.5 days of labour at a cost of REDACTED, 238 Application Lifecycle Management (ALM) licenses over the same period and expenses of REDACTED. A 2% discount to labour charges was automatically applied as the project had a length of more than 6 months.

CGI DSP provided the SOW V2.0 which had a total cost of REDACTED, representing a 10.2% saving against the SOW V1.0. The labour reduced by 409.5 days (-8.4%) to a total of 4,474 days at a total cost of REDACTED. The volume of ALM licenses also reduced by 28 (-11.8%) to 210 licences over the 8-month period and the expenses charges reduced by REDACTED to REDACTED.

¹ PR1089 was justified as part of DCC's RY19/20 price control.

The savings were achieved by amending the volume and level of resources required for delivery of this project without negatively impacting the target delivery date. The Systems Integration activity was unaffected. The SIT / DIT team resource charges reduced by REDACTED (-8.9%) as 216 days of activity were removed (-8.5%). The resource charges for supporting teams, including Triage, reduced by REDACTED (-25.6%) as a result of 182.5 days (-26.4%) of activity being removed.

A further saving affecting expenses charges was also subsequently negotiated and achieved but not recorded in the savings breakdown below. As a result of the travel restrictions imposed by the UK Government starting in March 2020 an expenses reduction of REDACTED per person per day was agreed with CGI. This saving across 2,500 days between March and July 2020 delivered an additional REDACTED saving. This reduced the final cost of the PR to REDACTED a total saving of over 12% against the initial SOW cost. A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Estimated Total Price (£)
PR1170 Labour Charges (see Labour Breakdown tab)	REDACTED
HP ALM Licences	REDACTED
DSP Team Setup Expenses Based on agreed daily charge rates: REDACTED	REDACTED
Schedule 7.1 defined discount for Project Request running longer than 6 months (2%)	REDACTED
Total Estimated Setup Charges excluding Finance (Time and Materials)	REDACTED

Table 2: Price Breakdown PR1170

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED ²	(10.2)

Table 3: Initial vs Final Price PR1170

2.2 TEF (C&S) – PR1170 (Dual Band DIT Re-start and Completion)

Drivers and Scope

As per the arrangements for CGI, PR1170 provides Telefonica with the necessary commercial cover to re-enter DIT for MM2 following the previously delivered CR1079 DIT MM2 covering the period up to the 31st August 2019 and PR1153 activities from the 1st September 2019 onwards.

More specifically, the scope of PR1170 can be summarised as follows:

- CSP test support to plan and execute Operational Confidence Test (OCT) of DBCHs with meters from MM2
- CSP support to the SI for triage and defect resolution activities during the DBCH OCT and DIT for MM2

² The value for this PR in the supplementary schedules is lower than this value. This is due to PRs being billed based on a 'time and materials' basis, and therefore actual spend was lower than expected.

- Support in preparing for and executing the DIT entry gate process
- Agreed duration to support for Work-off Plan (TAB Governance Support); and
- Programme management support for the delivery, including project governance, organisation and processes established for the delivery of DBCH.

The impact of not progressing this PR would have meant that the work to complete testing of Release 2.0 to deliver Dual Band Comms Hubs into service would not have continued.

Securing Value for Money

This Project Request was used as the vehicle for funding Telefonica’s work on the testing of Release 2.0 with actual meters, covering those meters provided by Meter Manufacturer 2 (MM2).

Device Integration Testing (DIT) is something that involves multiple stakeholders so Telefonica quotes for this on a time and manpower basis using rates specific in the contract.

DIT with MM1 was suspended when issues were identified which required rectification before MM” testing could proceed, this work being funded under PR1153, and recommenced once the rectifications were available.

The Statement of Work which DCC agreed and ordered was based on a time and manpower estimate.

The actual work carried out was approved by the DCC programme managers and a payment of REDACTED was made against an original Statement of Work budget of REDACTED. A saving of REDACTED was made against the original forecast.

A breakdown of the original costs and a summary of the cost reduction achieved is provided in the tables below.

Type	Category	PR1170
Direct	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	REDACTED
	Total Direct Charges	REDACTED
	Non-Direct	Working Capital
Non-Direct Charges		REDACTED
Total Setup Price to DCC		REDACTED

Table 4: Price Breakdown PR1170 Statement of Work (SOW)

Initial SOW price (£)	Final SOW Price (£)	Difference (%)
REDACTED	REDACTED	(3.5)

Table 5: Initial vs Final Price PR1170

2.3 CR1407 (BEIS/DCC Priority IRPS 2019)

Drivers and Scope

The Great Britain Companion Specification (GBCS) sets out data security and other operational standards for CHs. DCC is mandated by BEIS to develop, test and deploy new firmware to all operational CHs in line with each iterative update of the GBCS. The implementation of the new firmware is carried out by the DCC service providers in line with the BEIS mandate; CGI for the DSP system, Telefónica for the CHs in the Central and South region and Arqiva for the CHs in the North region.

BEIS continuously reviews and updates the GBCS and DCC is mandated to provide firmware updates to all CHs when required. The most recent update was GBCS version 3.2, which was issued in November 2019. More specifically, this involved the implementation of the following key Issue and Change Resolution Proposals (IRP) (CRP):

- **IRP514:** Modification to restrict Future Dated commands being operated by parties other than the Supplier. This is a security requirement.
- **CRP535:** This CRP corrects the assumed capability of the SMETS 2 service that HAN devices can be reintroduced after being removed from that HAN.
- **CRP540:** This CRP ensures that the HAN network key is updated after any change is made to any individual HAN. This is a security requirement
- **IRP569:** This IRP sets out how CH should handle Network Key changes required as a result of CRP540.

In addition, IRP538 and IRP511 were requested by respectively industry and Critical Software:

- **IRP538:** This IRP addresses an anomaly within the ZigBee Cluster Library specification which means Devices behave inconsistently if wildcards are used in the year field of either Season Start dates or Special Day Date, in either the Tariff Switching Table or the Non-Disablement Calendar. Wildcard years on gas for GPF. It also aligns with changes already implemented on Gas Meters.
- **IRP511:** Introduce a new event code and the addition of the corresponding EventCodeDescription in the P&C software.

From a CSP point of view, CR1407 includes:

- Design, Develop, Unit test by CH FW supplier.
- Develop PIT test cases
- Support SIT testing of these IRP/CRP.

Not pursuing CR1407 would have put DCC in a position where it cannot comply with the security requirements that had been identified.

Securing Value for Money

The original Arqiva IA submission for this piece of work was priced at REDACTED. DCC however paused the commencement of the work to uplift to GBCS 3.2 so that reduced costs could be negotiated. DCC programme and commercial teams challenged the submission extensively and identified and proposed opportunities to reduce cost. This challenge led to a 20% price reduction and IA resubmission by Arqiva priced at REDACTED for design, build, test and release of the new firmware on a fixed price basis. The REDACTED includes a design and build cost of REDACTED. A full breakdown of the costs and summary of the price reductions is provided in the tables below. Equivalent GBCS 3.2 uplifts for Telefonica are in progress and scheduled for release by Q4, 2021.

The original Arqiva IA submission for this piece of work was priced at REDACTED. DCC however paused the commencement of the work to uplift to GBCS 3.2 so that reduced costs could be negotiated. DCC programme and commercial teams challenged the submission extensively and identified and proposed opportunities to reduce cost including scheduling the work alongside other changes. This challenge led to a 20% price reduction and IA resubmission by Arqiva priced at REDACTED for design, build, test and release of the new firmware on a fixed price basis. The REDACTED includes a design and build cost of REDACTED. DCC also negotiated a 'Delay Payment' Mechanism so that Arqiva are liable for Delay Payments of up to 10% of the overall value of the change, i.e. REDACTED, if the completion of SIT testing is delayed for reasons within their control. A full breakdown of the costs and summary of the price reductions is provided in the tables below. Equivalent GBCS 3.2 uplifts for Telefonica are in progress and scheduled for release by Q4, 2021.

Detail	Estimated Total Price (£)
Design and PIT	REDACTED
SIT	REDACTED
UIT	REDACTED
OTA	REDACTED
Total	REDACTED

Table 6: Price Breakdown CR1407

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(21.2)

Table 7: Initial vs Final Price CR1407

3. November 2020 SEC Release

3.1 CGI – CR1294 (November 2020 SEC Release post PIT activities)

Drivers and Scope

CR1294 provides all activities beyond PIT completion, relating to the November 2020 SEC release, including Systems Integration, Integration Testing, Transition to Operations activities, go-live and subsequent operational support to the end of the current DSP Agreement in October 2021. More

specifically, CR1294 wraps up the following CRs for the release through the final stages of a SEC release lifecycle into production:

CR ref	CR Title
CR1088	Production Proving
CR1137	SECMP0062 CR 1137. Part 2. Alert Storm Protection Part 2 - DUIS Interface Changes
CR1118	SECMP0093 CR1118 DSP-DUIS Changes for GBCS
CR1145	CR1145. Auxiliary Proportional Controllers.
CR1233	SECMP078 Multiple IRP Resolution
CR1254	CR1254. Changes to Support Proportional Load Control
CR1277	CR1277. Completion of CR1164 Change to Install Code Length in 8.11
CR1355	Introduction of new Remote Party Role code of 'XMLSign'

Table 8: Functional CRs in November 2020 Release

In terms of scope, CR1294 covers for the following activities:

- Pre-Integration (PIT):
 - Release level performance testing within the PIT Environment
 - Two phase delivery from PIT into SIT resulting from delays in approval of the PIT phase activities
- Full SIT based Functional and Regression testing for the November 2020 Release:
 - SMETS2 Functional Testing to check the changes via GBCS 3.2
 - SMETS1 and SMETS2 Compatibility and Regression testing between various DUIS and GBCS version on the devices
- Preparation for User Integration Testing (UIT)
- Environments uplift deployments for SIT-B and UIT-B
- Integration support for the SIT regression testing and User Testing Preparation
- System Integrator release management
- Programme Management and Operations team support for the resources delivering the November 2020 Release.

Furthermore, Transition to Operations (TTO) is to re that service management processes are validated, and that Operations teams are ready to support the changes introduced by the wider release involves the following activities:

- Business Acceptance Testing (BAT), which involves supporting DCC in its end-to-end testing of operational processes
- Operational Acceptance Testing (OAT), which encompasses non-functional requirements testing, non-integrated performance testing, BCDR testing (if required) and security testing (if required)
- Acceptance into Service (AIS), which involves supporting DCC in the formal gate processes that assure readiness
- Environments uplift, covering detailed planning and implementation of the uplift to the November 2020 Release for the SIT-A, UIT-A and Production/DR environments; and
- Incubation Support for the release for a small number of weeks.

The impact of not progressing this CR would result in a non-compliance with SEC obligations. A failure to deliver the SEC System Release in November 2020 would have also increased the backlog of change to be delivered in future release slots, delaying other mandatory changes.

Securing Value for Money

The initial price for CR1294 (November 2020 Release post PIT activities) was calculated to be REDACTED by CGI DSP. The activity covered a 9-month period between June 2020 and February 2021. This Full Impact Assessment (FIA) V1.0 included 6,033.5 days of labour at a cost of REDACTED, expense charges of REDACTED, 205 ALM licenses over a 6-month period between June 2020 and November 2020 at a cost of REDACTED, release penetration test charges of REDACTED and application management support charges of REDACTED running for an 11 month period from December 2020.

As a result of the travel restrictions imposed by the UK Government starting in March 2020 an expenses reduction of REDACTED per person per day was agreed with CGI. This impacted June 2020 only at the time of submission of the Price Breakdown V1.0 by CGI DSP. This delivered a saving of REDACTED (9.8%) from 885 onshore labour days in June 2020.

Prior to the submission of the Price Breakdown V1.0 by CGI DSP, it was identified previously agreed post-PIT charges of REDACTED should be subtracted from the total charges of CR1294 of REDACTED. This delivered a 3.6% saving and reduced the total charges under CR1294 to REDACTED. The table below summarises the reduction:

REDACTED

CGI DSP provided the Final Impact Assessment (FIA) V2.0 and Price Breakdown V2.0 which had a total cost of REDACTED, representing a 0.4% saving against the Price Breakdown V1.0. The expenses charges reduced by a further REDACTED (19.6%) as a result of i) the travel restrictions reduction being extended to July 2020 along with ii) an increase in the value of the reduction from REDACTED (+20%) per onshore labour day. This value increase was backdated to the start of the activity.

A single security-based code review was added to the scope within the FIA V2.0. This added a new cost of REDACTED to the programme of activities.

After further discussions regarding the expenses charges following continuation of the Government imposed travel restrictions, CGI DSP later submitted the Final Impact Assessment (FIA) V2.1 and Price Breakdown V2.1. This had a total cost of REDACTED, delivering a further saving of REDACTED (2.4%) against the Price Breakdown V2.0. The saving was delivered from the expenses charges as the impact of the reduction was extended to the end of December 2020 impacting a total of 5,958.5 onshore labour days even though the final expenses reduction impact was agreed at REDACTED, reduced from REDACTED in the FIA V2.0.

A further saving affecting expenses charges was also achieved but not recorded in the savings breakdown below as the continuation of the travel restrictions continued to the end of the programme of activities. This impacted 41 onshore labour days during January 2021 and February 2021, delivering further expenses savings of REDACTED.

Excluding working capital charges, this reduced the final cost of CR1294 to REDACTED a total saving of over 6.3% against the initial SOW cost. Once the working capital charges of REDACTED were added, a total saving of 4.5% was achieved against the very initial impact assessment.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Total Price (£)
Setup Labour Cost	REDACTED
Core DSP Team Setup Expenses (discounted to 31st December 2020 due to travel restrictions). Based on agreed daily charge rates: REDACTED	REDACTED
ALM Licenses	REDACTED
Release Penetration Test (QinetiQ Third Party Cost)	REDACTED
Code Review - included as part of this v2.0	REDACTED
Working Capital Charge	REDACTED
Total Setup Charges	REDACTED
Application Management Support - relating to additional functionality. Service running from an assumed commencement in Dec 2020 for a period of 11 months.	REDACTED
Total Operational Charges	REDACTED
Total Charges (excluding Finance)	REDACTED

Table 9: Price Breakdown CR1294

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(4.5)

Table 10: Initial vs Final Price CR1294

3.2 ARQ – CR1294 (November 2020 SEC System Release)

Drivers and Scope

As per the case for CR1294 (CGI), CR1294 for Arqiva provides all activities beyond PIT completion, relating to the November 2020 SEC release, including Systems Integration, Integration Testing, Transition to Operations activities, go-live and subsequent operational support. In line with CR1294 for CGI, CR1294 for Arqiva wraps up the following CRs for the release through the final stages of a SEC release lifecycle into production:

CR ref	CR Title
CR1088	Production Proving
CR1137	SECMP0062 CR 1137. Part 2. Alert Storm Protection Part 2 - DUIS Interface Changes
CR1118	SECMP0093 CR1118 DSP-DUIS Changes for GBCS
CR1145	Auxiliary Proportional Controllers.
CR1233	SECMP078 Multiple IRP Resolution
CR1254	Changes to Support Proportional Load Control
CR1277	Completion of CR1164 Change to Install Code Length in 8.11
CR1355	Introduction of new Remote Party Role code of 'XMLSign'

As per the case for CR1294 for CGI, the impact of not progressing this CR would have resulted in a non-compliance with SEC obligations. A failure to deliver the SEC System Release in November 2020 would have also increased the backlog of change to be delivered in future release slots, delaying other mandatory changes.

Securing Value for Money

The initial Impact Assessment was submitted on 11/06/2020 and was for REDACTED. This was in excess of the original ROM estimate given at the PA stage, but the Project Manager was satisfied that the content had been clarified to be more than originally thought.

DCC made a formal challenge to the initial IA and queried some time allocations as well the contingency. Following discussion, the IA was updated on 10/7/2020 with the breakdown as set out below. This resulted in a 6.1% reduction.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Total Price (£)
SIT Support Total	REDACTED
UIT Support Total	REDACTED
UIT Prep Total	REDACTED
SIT-A Total	REDACTED
SIT-B Total	REDACTED
Deployment into Production Total	REDACTED
Project Management Total	REDACTED
Contingency	REDACTED
Overall Total	REDACTED

Table 11: Price Breakdown CR1294

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(6.1)

Table 12: Initial vs Final Price CR1294

4. Enterprise Change

4.1 ARQ – CR1209 (B stream extension)

Drivers and Scope

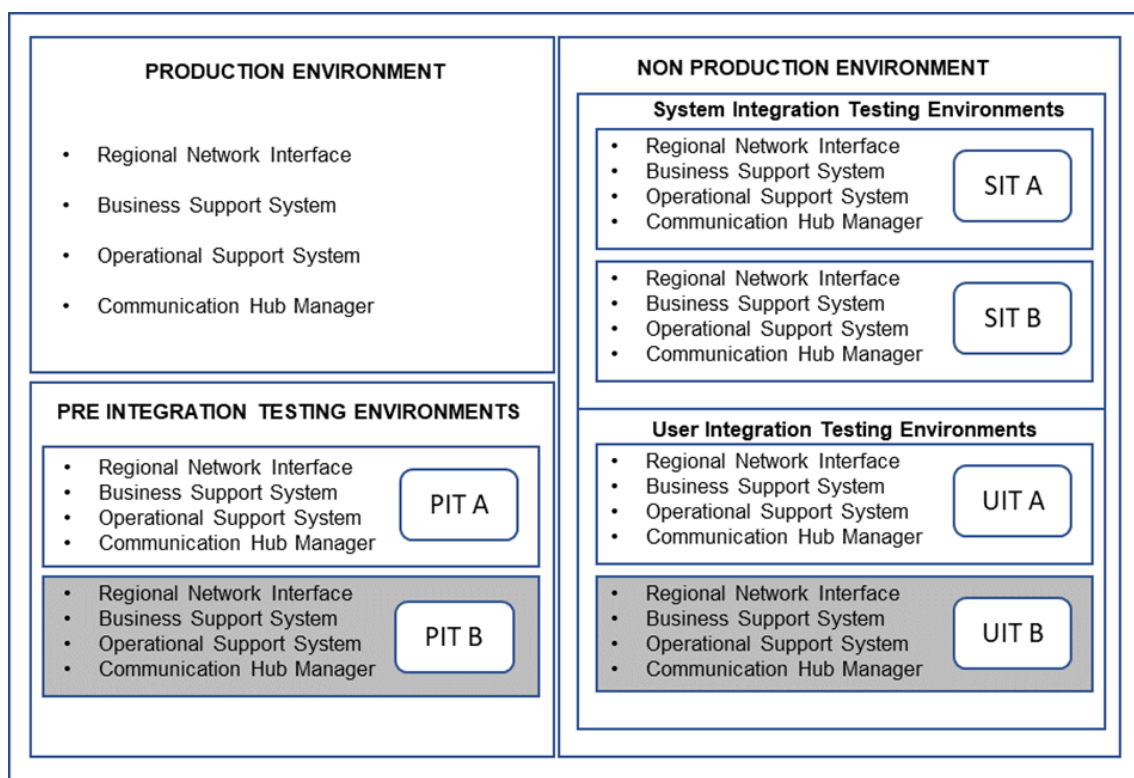
As part of the SMETS2 programme, DCC maintains a series of Arqiva environments for the North region:

- A production environment
- A series of “A” stream environments

- A series of “B” stream environments

The production environment is a technical platform that DCC uses as a channel to deliver services to end users. This includes the processing of live SMETS2 data such as meter message data. The A-stream environments (“production support environments”) are used to replicate the production environment so that new functionality and fixes can be safely tested. This ensures fixes are proved to work before they are deployed into the production environment. This also includes maintenance releases. In 2018, DCC commissioned a set of Arqiva B-stream environments for the SMETS2 programme. B-stream environments are used to test change requests and complete testing on future releases whilst maintaining a full set of stable A-stream environments. Arqiva implemented a Pre-integration Test (PIT) and a User Integration Test (UIT) B-stream environment to support the continued testing of new releases. The contractual support for these environments however was due to expire at the end of June 2020. Without these B-stream environments, testing cannot be completed in parallel. This would also mean test phases would need to be sequenced one after another, resulting in a significant delay to programme delivery.

The graph below depicts the details of the series of Arqiva Environments as well as the two Environments subject to refresh highlighted – “PIT B” and “UIT B”. Support for each of the non-highlighted environments (“Production”), A-Stream environments and System Integration Testing Environment-B, “SIT B”) are already covered under existing contractual arrangements for the duration of the SMETS2 programme.



In pursuing CR1209, the following options were considered:

Option 1: Do Nothing. DCC could choose not to proceed with delivery of these initiatives, however the impact of this would be significant. Not having the environments would lead to DCC failing to meet its Smart Energy Code obligations. DCC would also be unable to deliver ongoing enhancements to its systems which the Energy Industry is dependent on.

Option 2: Smaller support contract. A consideration has also been given to having a shorter support contract. This option has been discounted on the basis that the overall DCC IT strategy requires these environments to be available over the 4-year extension period and a 4-year contract is likely to be the most cost effective.

Option 3. Extend the cover and carry out a refresh of the two environments. Option 3 was pursued on the basis that it allows DCC to proceed with its Road Map of Change, in addition maintaining a stable delivery platform for its customers.

Securing Value for Money

The costs associated to CR1209 are limited to the specific environments associated with Pre-Integration Testing and User Integration Testing. The Arqiva proposal was reviewed by DCC Technical and Commercial teams and validated both from a financial and technical perspective.

The CR1209 proposal from Arqiva was based on taking advantage of a wider tech refresh programme which Arqiva were undertaking in relation to the environments for which they were responsible for legacy support, and already funded under the contract. DCC examination of the cost involved ensuring that DCC only bore a ‘fair share’ of the overall refresh programme, as was applicable to the environments covered by CR1209. Arqiva provided evidence to show the overall cost and the proportion being allocated to CR1209.

DCC also took into account that the UIT B environment, that was due to be refreshed under CR1209, had originally been provisioned by the logical separation of a former dual redundant UIT environment. DCC therefore sought and received assurance from Arqiva that the hardware refresh cost for UIT B was not included in CR1209, as it would originally have been part of the legacy UIT environment and therefore this cost was already covered by Fixed operating Charges. DCC Contract Management had taken care to note this fact to ensure it was respected when tech refresh was being considered.

An external commercial assurance, using a benchmarking methodology, was carried out by Gartner. This targeted piece of work concluded that the pricing could be considered to be value for money.

The cost covers the period 1 July 2020 to 30 June 2024 and can be broken down to:

Proposal elements	Total (£)
Technical refresh costs	REDACTED
Support costs	REDACTED
Total	REDACTED
Total (including finance costs)	REDACTED

Table 13: Price Breakdown CR1209

There was only one version of the Impact Assessment, but this followed extensive discussion, essentially going straight to the Final IA stage. The main reduction in cost DCC achieved was by avoiding the hardware tech refresh cost for UIT B. This was not formally included in any IA as DCC had taken pro-active measures to ensure it would not be. However, by comparison with the PA ROM, which

was REDACTED covering two environments, it can be inferred that this was a saving of approximately REDACTED.

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	-

Table 14: Initial vs Final Price CR1209

4.2 CGI – PR1243 (Production Support Testing & Production Maintenance Release - Soak Testing Device Sets – includes former CR1159)

Drivers and Scope

Production Support Testing (PST) covers testing of system updates (software or firmware) where the build for that system is already in the Production environment. An update can come in the form of a defect fix for an issue identified in UIT or Production or it can cover small updates to functionality where the testing for the update can fit into the test window alongside other mandated levels of testing. PST takes place in the SIT-A environment and covers all service providers that form part of the DCC eco system and is not limited to DSP releases. Since the initial go live of the DCC Data System, the initial scope of PST was limited to SMETS2 functionality only. Since August 2019 the scope increased to include SMETS1.

PR1243 relates to the services supplied by the Production Support Team to support SMETS1 and SMETS2 PST, and SMETS2 Soak Testing as part of the Production Proving Test Approach. The Production Support Testing team continues to test eco-system defect fixes and changes in the SIT-A en-route to Production. This includes both planned and emergency releases.

- For SMETS2 (if applicable), providing support and/or executing tests for other SMETS2 Service Providers for releases made to their SIT-A environments (via SI Release Management) that require the DSP to send/receive data across the system interfaces
- For SMETS1 (if applicable), providing support and/or executing tests for other SMETS1 Service Providers for releases made to their SIT-A environments (via SI Release Management) that require the DSP to send/receive data across the system interfaces
- Carrying out targeted testing requested by empowered stakeholders to check responses based on feedback from Customers in the Production environment
- Liaising with DCC Production Operations to agree scope and entry/exit criteria for each release
- Reproducing Production observations/defects and assistance with their analysis
- Receipt/collation of testing requests from various service stakeholders and presentation of those to an agreed Change Forum as candidates for entry into PST (forum has been proposed but is yet to be established).
- Functional and regression testing of eco-systems changes through releases (by SI Release Management) in SIT-A

- Carry out non-functional pre and post checks / tests to ensure the deployments have been successful
- All testing activities will follow a controlled testing lifecycle with entry/exit criteria and reporting agreed with DCC in advance of the testing taking place; and
- Defect Management for SIT-A activities.
- A SMETS2 Soak Test station will be provided in the SIT-A environment. A meter set is expected to consist of 1 ESME, 1 GSME & 1 PPMID
- Once I&C is completed, the SMETS2 Soak Test should focus on how the test set behaves over a period of days. As SIT-A Production maintenance testing takes around 12 days to complete, it is proposed that a SMETS2 Soak Test station is made available for the duration of SIT-A.

Securing Value for Money

The initial price for PR1243 (Production Support Testing & Production Maintenance Release - Soak Testing Device Sets (includes former CR1159)) was calculated to be REDACTED by CGI DSP. The scope of works activity covered a 6-month period between April 2020 and September 2020. This Statement of Work (SoW) V1.0 included 2,068.6 days of labour at a cost of REDACTED, expense charges of REDACTED and the labour charges automatically qualified for a 1% discount as the duration of this PR was between 3 and 6 months, generating a saving of REDACTED.

As a result of the travel restrictions imposed by the UK Government starting in March 2020 an expenses reduction of REDACTED per person per day was initially agreed with CGI. This originally impacted the period 24 March 2020 to 30 June 2020, delivering a saving of REDACTED (-29.5%) from 915 onshore labour days during the impacted period.

CGI DSP provided the Statement of Work (SOW) V2.0 and Price Breakdown V2.0 which had a total cost of REDACTED. This increase of REDACTED arose from DCC requesting additional comms hub testing to be included in the price. The increase was largely derived from the labour charges, which had increased by REDACTED (38.4%) as a result. The expenses charges reduced by REDACTED (-58.1%) as the expenses reduction per day was increased to REDACTED and the discount was applied over the full period of work. The 1% discount automatically applied for projects with a duration of between 3 and 6 months also increased by REDACTED (38.4%).

A list of 34 individual items were raised to query and challenge the scope of activities CGI were undertaking and a number of these items were subsequently removed from scope.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Total Price (£)
Setup Labour Costs (See Labour Breakdown)	REDACTED
DSP Team Setup Expenses Based on agreed daily charge rates: REDACTED Discounted for period 24th March to 30th September 2020 due to travel restrictions	REDACTED
Discount for projects of continuous duration between 3 and 6 months: 1%	REDACTED

Working Capital Charge (please refer to section 3.2.2 of the Statement of Work)	REDACTED
Total Setup Charges	REDACTED

Table 15: Price Breakdown PR1243

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED ³	35.1

Table 16: Initial vs Final Price PR1243

As described in the paragraphs above, the increase in costs between the IA and FIA is the result of a material addition in scope. DCC did still negotiate a reduction in expense costs and a discount related to the duration of the work.

4.3 CGI – PR1267 (Production Support Testing and Production Maintenance Release and SMETS2 Soak Testing Device Sets)

Drivers and Scope

Initially the commercials for SMETS1 PST were covered by the release CR or PR but have been included in PR1243 since April 2020. PST was covered via the following CRs and PRs over the past year:

- PR1243 covered PST for SMETS1, SMETS2, SMETS2 Soak Testing and Additional Comms Hub testing. This covered the period from 1 April to 30 September 2020.
- CR1287 covered SMETS2 PST for the period 1 April 2019 to 31 March 2020. CR1287 is a continuation of CR279 covering the previous 12 months.
- PR1220 covered SMETS1 PST for the period December 2019 to March 2020. Following discussions with DCC, PR1267 included supplementary resources compared to CR1243 to support the additional Comms Hub testing, Informal Operational Confidence Testing (IOCT) with the CSPs and RDP testing.
- PR1145 covered SMETS1 PST for the period September to November 2019 (running alongside CR1287). PR1145 was, itself, a continuation of SMETS1 PST post IOC Go Live confidence testing in SIT-A, started under PR1125.

PR1267 provides cover for the six (6) months from 1 October 2020 until 31 March 2021. With the exception of IOCT, the scope of PR1267 largely follows that of the preceding PRs in this space.

Failing to implement CR1267 increases DCC’s risk of not meeting its SEC obligations. PST helps DCC to mitigate these risks and provide customers with the necessary re-assurance that the respective defects or fixes to the system can be handled without this resulting to a delay to live operation.

Securing Value for Money

³ The value for this PR in the supplementary schedules is lower than this value. This is due to PRs being billed based on a ‘time and materials’ basis, and therefore actual spend was lower than expected.

The initial price for PR1267 (Production Support Testing & Production Maintenance Release SMETS1 & 2, and SMETS2 Soak Testing Device Sets (incl. ex CR1159) (1 Oct 20 - 31 Mar 21)) was calculated to be REDACTED by CGI DSP. The scope of works activity covered a 6-month period between October 2020 and March 2021. This Statement of Work (SoW) V1.0 included 4,893.5 days of labour at a cost of REDACTED, expense charges of REDACTED and the labour charges automatically qualified for a 2% discount as the duration was 6 months or more, generating a saving of REDACTED.

As a result of the travel restrictions imposed by the UK Government starting in March 2020 an expenses reduction of REDACTED per person per day was agreed with CGI. This impacted the whole duration of this PR1267 between October 2020 to March 2021. This delivered a saving of REDACTED (-79%) from 4,893.5 onshore labour days during the impacted period.

CGI DSP provided the Statement of Work (SOW) V2.0 and Price Breakdown V2.0 which had a total cost of REDACTED, representing a 14.2% decrease against the Price Breakdown V1.0. DSP agreed to implement the following changes to the PST process as part of this SoW V2.0:

- Deliver GBCS CH testing activities as per the current GBCS plan
- On the 10th working day of each month, DSP are to provide the actual effort incurred against the forecast at the individual work package level for the previous month
- On the 5th to last (-5) working day of the month, DSP will provide a breakdown and forecast of the activities requested for the following month.
- On the 3rd to last (-3) working day of the month, DSP are to hold a meeting with DCC to ensure that an agreement is reached on these figures by the last working day of the month. Approval via email will be required from DCC's Head of Test Assurance (REDACTED), or a nominated deputy only.
- During the month DSP will monitor the actuals against the monthly forecast and report on an exception basis if the actual is expected to differ significantly from the forecast.

Despite the above amendments to the PST process, the labour charges reduced by a total of REDACTED (-15.4%) as a result of significant labour reductions during October 2020 to December 2020. The volume of labour days required reduced by 900.2 days (-18.4%) to just 3,993.3 over the whole duration of this PR1267. The expenses charges reduced by a further REDACTED (18.4%) in line with the reduction in the total volume of labour days. The requirement for ALM licenses was added as 186 ALM licences were needed adding a cost of REDACTED to the overall cost of PR167 in this Price Breakdown V2.0.

CGI DSP later submitted the Statement of Work (SoW) V3.0 and Price Breakdown V3.0 which included some additional testing in relation to a DCC Service Management System update (SIP468) which was deployed in 2019. The overall cost reduced by a further REDACTED (-10.8%) to REDACTED. The labour charges reduced by REDACTED (-7.6%). The expenses charges reduced by REDACTED (-6.0%) in line with the reduction in labour days. Urgent Work Purchase Orders were provided to provide CGI DSP commercial cover for the period October 2020 and December 2020. As a result of an overspend by CGI DSP, it was agreed CGI covered the variance between the commercial cover value and the labour charge spend, generating a saving of REDACTED.

This all resulted in a significant -23.4% saving between the SoW V1.0 and the final SoW V3.0.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Price v1.0 (£)	Price v2.0 (£)	Estimated Total Price 3.0 (£)
Setup Labour Costs (See tabs for Actuals from October 2020 to December 2020 and Estimated charges from January 2021 to March 2021)			REDACTED
DSP Team Setup Expenses (See Expenses Tab) - Discounted due to Travel Restrictions			REDACTED
ALM Licenses (See ALM Licences)			REDACTED
CGI funded UWO labour delta (excluding licences and expenses)			REDACTED
Total Charges (excluding finance)	REDACTED	REDACTED	REDACTED

Table 17: Price Breakdown PR1267

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(23.4)

Table 18: Initial vs Final Price PR1267

4.4 CGI - CR1321 (Enduring UIT Testing Service: April 2020 – March 2021)

Drivers and Scope

Over the past two years, DSP Testing Services for UIT was covered by CR279 and subsequently CR1287. The DCC has taken the decision to split the services covered by these CRs into three separate elements from 1st April 2020, namely UIT Testing Services (CR1321), SI Release Management (CR1328) and Production Support Testing In SIT-A (CR1322). From April 2020, the scope of cover across these CRs is to be expanded to include SMETS2 and SMETS1. Note that to date, Testing Services has only covered SMETS2. The inclusion of SMETS1 functionality results in additional testing parties and additional, ongoing release activity.

The requirements for CR1321 include the continuation of UIT Testing Services as described under CR1287, which is to be extended to cover both SMETS2 and SMETS1 and also include support for Migration Device User System Test (MDUST), which has previously been covered under an approved CR1195. The duration of the service under CR1321 covers period 1st April 2020 through to 31st March 2021.

Securing Value for Money

The initial price for CR1321 (DSP Core Testing Services) was calculated to be REDACTED by CGI DSP. The activity covered a 12-month period between April 2020 and March 2021. This Full Impact Assessment (FIA) V1.0 included 9,779 days of labour at a cost of REDACTED, expense charges of REDACTED and 590 ALM licenses over the 12-month period at a cost of REDACTED. The travel restrictions imposed by the UK Government started in March 2020 and as a result a saving of REDACTED per resource day was agreed. At the time of this FIA V1.0 submission, the conclusion of the travel restrictions was expected to be 31 July 2021. As such, a REDACTED saving was factored into the expense charges factored into the REDACTED fee.

After several meetings, review and feedback sessions, CGI DSP provided the Final Impact Assessment (FIA) V2.0 and Price Breakdown V2.0 which had a total cost of REDACTED, representing a 3.2% saving against the Price Breakdown V1.0. The labour charges reduced by REDACTED (1.8%) as the volume of labour days required reduced by 182 days (1.9%) to 9,597 labour days. Resource savings were mainly delivered in UIT Senior Test Analysts (REDACTED) and Triage Service Analysts (REDACTED) where the volume of resource required was reduced based on expected requirements. The expenses charges reduced by a further REDACTED (45.9%) as a result of the reduced labour days and the extension of the travel restrictions savings being extended by a further 6 months to 31 December 2021. The volume of ALM licenses was also reduced to 580 over the 12-month period to a cost of REDACTED delivering a saving of REDACTED (1.7%).

A further saving affecting expenses charges was also achieved but not recorded in the savings breakdown below as the continuation of the travel restrictions imposed by the UK Government starting in March 2020 continued to the end of the programme of activities under CR1321. This saving of REDACTED per resource day impacted a further 2,341 labour days between January 2021 and March 2021, delivering further savings of REDACTED.

Excluding working capital charges, this reduced the final cost of CR1321 to REDACTED a total saving of over 4.1% against the very initial price breakdown cost.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Total Price (£)
Setup Labour Cost (See Separate Breakdown)	REDACTED
DSP Team Expenses (discounted to 31st December 2020)	REDACTED
ALM Licences	REDACTED
Working Capital Charge	REDACTED
Total Charges (excluding Finance)	REDACTED

Table 19: Price Breakdown CR1321

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(3.2)

Table 20: Initial vs Final Price CR1321

5. SMWAN Coverage Database

5.1 ARQ – CR1028 (SMWAN Coverage Database)

Drivers and Scope

The original CSPN Coverage Database provided a listing of postcodes where Comms Hub installations are allowed with an ESME meeting the 7dB noise rise specification. Within the Coverage Database (CODB), a postcode where coverage is designated as HIGH is deemed to be covered and LOW indicates non-covered postcodes. Arqiva was requested to amend the Coverage Database to allow the installation of ESMEs that fail to meet the 7dB noise rise specification.

This change was considered critical to prevent further delays in Comms Hub rollout. The CODB was modified on a temporary basis, at the request of DCC, to show coverage as:

- **HIGH** at postcodes where an ESME producing a noise rise $\leq 13\text{dB}$ is permitted to be installed. This temporary change provides a CODB indicating coverage at approximately 50% of CSPN postcodes and will remain in place until further changes based on this Change Request are implemented.
- **LOW** will continue to indicate postcodes that are not covered.

CR1028 seeks to assess the impact of a refinement to the granularity of the SMWAN Coverage Database for CSPN whereby the SMWAN Coverage Database contains data that gives information on the following installation cases:

- ESME product that causes $\leq 17\text{dB}$ noise floor rise.
- ESME product that causes $\leq 15\text{dB}$ noise floor rise.
- ESME product that causes $\leq 13\text{dB}$ noise floor rise.
- ESME product that causes $\leq 11\text{dB}$ noise floor rise.
- ESME product that causes $\leq 9\text{dB}$ noise floor rise.
- ESME product that causes $\leq 7\text{dB}$ noise floor rise.

The impact of not progressing this CR would have been to constrain the rollout in CSPN, as only 7dB ESMEs could be installed. Any currently installed ESMEs not meeting the 7dB noise rise specification would need to be replaced.

Securing Value for Money

CR1028 was raised as an urgent CR at the time that the issue of non-compliant meters was discovered. Both DCC and BEIS wanted to act quickly to enable smart meter installations to proceed where technically feasible. Phase 1 of the work commenced immediately and involved an interim amendment to the SMWAN coverage database. There were 3 iterations to the Impact Assessment (IA) of which the first one did not include any costings. The second draft IA quoted a ROM of REDACTED and REDACTED for Phases 1 and 2 respectively. Another feature of this version of the IA was an in-life cost for additional service support of REDACTED for the first 18 months (REDACTED per month) commencing on the Derogation period and then dropping to REDACTED per month for the balance of the Contract period - another REDACTED. The total cost of this IA draft amounted to REDACTED.

DCC commercial accepted the cost that Arqiva was quoting for the coverage database configuration and for integrating the actual installed records with the service management tool. However, DCC extensively challenged Arqiva on the fact that this activity had a differential impact on CSPN's service management cost both during the derogation and especially on an enduring basis thereafter. Arqiva accepted DCC's challenge which ultimately resulted in a third draft of the IA, reducing the cost to REDACTED. The latter covered both phases and excluded an enduring service charge. This therefore created a saving of REDACTED.

Following agreement of the price, there followed a considerable period of negotiation, notably around the contractual risk associated with having non-compliant meters installed in the region duration the derogation period and then operating thereafter. DCC was able to negotiate that it had no additional ongoing legacy liability to CSPN, either explicitly, in terms of charges, or implicitly in contractual lets.

A breakdown of the costs and summary of the price reductions is provided in the tables below.

Detail	Estimated Total Price (£)
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Phase 1 Amendment of Coverage Database incl. support during the derogation period	REDACTED
Phase 2 Amendment to Service Management system for enduring support	REDACTED
Ongoing operating charge after derogation period	REDACTED
Total	REDACTED
Total (including finance costs)	REDACTED

Table 21: Price Breakdown CR1028

Initial IA price (£)	Final IA Price (£)	Difference (%)
REDACTED	REDACTED	(26.6)

Table 22: Initial vs Final Price CR1028