

SEC Modification Proposal, SECMP0293, CR5807

Deferment of DCC Planned Maintenance during Adverse Weather, Enhanced Availability Service Full Impact Assessment

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1 Executive Summary

Following a SEC Change Board meeting on 2nd April, DCC was requested to carry out a Full Impact Assessment of the Enhanced Availability (EA) Service on the As Is DSP platform. This includes a delivery of “Must and Should” Requirements option, without a Disaster Recovery site. The Change Board are asked to approve the following:

- Total cost to implement the EA Service solution on the As Is DSP platform as part of SECMP0293, Deferment of DCC Planned Maintenance of **£1,314,489** which comprises:
 - **£878,258** in Design, Build, and Pre-Integration Testing (PIT)
 - **£436,232** in Implementation, including integration testing and deployment
- Annual running costs depending on usage of about **£340,000**.
- Expected effort of seven (7) months to complete with a target release of December 2026.

Problem Statement

Following Storm Daragh in December 2024, some Network Parties reported problems arising from business-as-usual adverse weather recovery activities. Network Parties also reported their inability to realise the benefits of being a DCC User during that outage.

In addition, DCC is required to report on prepayment vend failures for each High Impact Maintenance Window and during the window averaged 30,093 failures per impact window.

The typical occurrence of As Is DSP Planned Maintenance events is about one per month on average, and the outage is usually from 20:00 to 02:00 hours. The As Is DSP is expected to be in place, and running, until the completion of the As Is DSP to Future DSP migration in late 2028.

Modification Benefits

Delivery of the “Must and Should” Requirements as part of an EA Service on the As Is DSP, without the DR site option, would meet the requirements of both Network Operators and Suppliers, reducing or eliminating the current impact of monthly six-hour planned maintenance outages for essential Service Reference Variants (SRV) and Alerts, potentially for a period from December 2026 to the full implementation of DSP2 in September 2028.

By implementing an Enhanced Availability Service that continues to pass selected SRVs and Alerts during an As Is DSP outage, this solution mitigates the risks Network Operators manage where there is a power outage during a named storm, while Suppliers would benefit from reduced, failed prepayment vends during planned maintenance periods and other impacting events such as Price Control Update Events.

2 Document History

Revision History

2.1

Revision Date	Revision	Summary of Changes
15/05/2026	0.1	Initial version, for DCC internal review
26/05/2026	0.2	Review complete
28/05/2026	0.25	Minor updates

Associated Documents

This document is associated with the following documents:

2.2

Ref	Title and Originator's Reference	Source	Issue Date
1	MP293-Modification-Report-v0.3	SECAS	06/01/2026
2	Business Requirements	DCC	06/01/2026

References are shown in this format, [1].

Document Information

2.3

The Proposer for this Modification is Catherine Duggan of SPNWL. The Modification was raised on 9th June, 2025.

The Full Impact Assessment (FIA) was requested of DCC on 9th April, 2026.

3 Context and Requirements

In this section, the context of the Modification, assumptions, and the requirements are stated.

The requirements have been provided by SECAS, the Proposer, and the Working Group.

Current Arrangements

A High Impact Planned Maintenance event is one in which there is Material Risk of disruption to the provision of services. SEC Section A 'Definitions & Interpretations' defines it based on one or more of the following criteria being met:

- 3.1 i. end-to-end communications between Users and Communications Hubs in either direction
- ii. install & commission activities
- iii. previously scheduled Smart Metering Equipment Technical Specification (SMETS)1 migrations

What is the Issue?

- 3.2 During Storm Daragh in December 2024, DCC carried out a Planned Maintenance activity. Following a request from a Network Party seeking a deferment; some Network Parties reported that this overlap exacerbated existing operational and logistical complexities arising from business-as-usual adverse weather recovery activities. Network Parties also reported that the overlap resulted in their inability to realise the benefits to Network Operators of being a DCC User during that outage.

The typical occurrence of As Is DSP Planned Maintenance events is about one per month on average, and the outage is usually from 20:00 to 02:00 hours. The As Is DSP is expected to be in place, and running, until the completion of the As Is DSP to Future DSP migration in late 2028.

3.3

Modification History and Potential System-Based Solution

The Proposer raised this Modification with a view to codifying a defined set of criteria which would need to be met to trigger the deferment of DCC Planned Maintenance event. During the development of the Modification, the DCC proposed a mechanism by which a selected subset of SRVs and/or Alerts might be kept available during a Planned Maintenance event, allowing Parties to remain in communication with Devices during an Adverse Weather event with outage times being reduced. This FIA focusses exclusively on the development of an EA Service on the As Is DSP for this purpose.

Following a SEC Change Board meeting on 2nd April, DCC was requested to carry out a Full Impact Assessment of the Enhanced Availability (EA) Service on the As Is DSP platform. This includes a delivery of "Must and Should" Requirements option, without a Disaster Recovery site.

Business Requirements

DCC have calculated the daily and hourly maximum volumes of the selected SRVs and Alerts during named storms¹ to identify the required capacity. The headline values are provided in Appendix B at the end of this document, and have been used to calculate the capacity required to support the solution.

- 3.4** The high-level business requirements are as follows. All the following requirements are categorised as Must, except for those marked as [Should].

1.	Using the EA Service, Users shall be able to send the following on demand SRV and receive appropriate responses: 7.4, Read Supply Status
2.	Using the EA Service, Users shall be able to receive this alert: AD1, Power Outage Alerts
3.	Using the EA Service, Users should be able to send the following on demand SRVs and receive appropriate responses: 2.2, Prepay Top-up device 4.3, Read Instantaneous Prepay Values
4.	Using the EA Service, Users should be able to receive appropriate responses [Should]: N56, Prepay Top-up device
5.	The EA Service must be available for SMETS2+ and SMETS1 Devices.
6.	To use the EA Service, there shall be no changes to User-required actions or configurations. Users must not be able to distinguish between services.
7.	When a major incident, planned maintenance, or BCDR impacts the EA Service specifically, it will not be available.
8.	Both the DCC Total System and EA Service must not be taken down at the same time for Maintenance or BCDR Tests.
9.	The EA Service shall have at least 99.5% availability.
10.	The EA Service shall be as secure as the corresponding DCC Total System components, and use the same DUIS schema.
11.	The EA Service must: Have the capacity to handle at least 1,400,000 SRV7.4 plus corresponding Responses per day Have the capacity to handle at least 1,400,000 AD1 Alerts per day Ensure processing as close as possible to the existing standard DCC Total System functionality in terms of logging and messages Maintain Target Response Times (TRT)
12.	When in use as part of the “Should scenarios” identified, the EA Service should additionally:

¹ In the UK, a storm is named when it is expected to cause disruption or damage significant enough to warrant an amber or red warning. See [How do we name storms? - Met Office](#)

	Have the capacity to handle at least 9million SRVs per day plus corresponding responses [Should] Have the capacity to handle at least 500,000 N56 Alerts per day [Should]
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Table 1: Business Requirements, SECMP0293

Subsequent discussions at the Working Group resulted in the addition of two further device Alerts to the proposed scope:

- 0x8F35, Supply Outage Restored
- 0x8F36, Supply Outage Restored - Outage >= 3 minutes

Notes on DCC Alerts and Service Reference Variants

This section provides supporting information on the Alerts and SRVs specified in the requirements above. The functionality is defined by DCC User Interface Specification (DUIS),

3.5 DCC User Gateway Interface Design Specification (DUGIDS), and SMETS1 Supporting Requirements (S1SR).

Alert	Availability	Eligible Users	Usage
AD1, Power Outage Alerts	SMETS2+ Devices, Communications Service Provider (CSP) notification of loss of DC power as detected at the Comms Hub in Premises for a time equal to or greater than three minutes	Import Supplier (IS), Electricity Distributor (ED), Gas Supplier (GS), Gas Transporter (GT)	Used by Network Operators (NO) to diagnose and track recovery of power outages
N56, Pre-Pay Top-Up	SMETS1 Service Provider Provision of prepayment top-up UTRN	Trigger is a User request for a prepayment top-up.	Service Request sender
0x8F35, Supply Outage Restored	ESME Devices	IS, ES, ED, GT	Sent by Devices in the event of a power outage
0x8F36, Supply Outage Restored - Outage >= 3 minutes)	ESME Devices	IS, ES, ED, GT	Sent by Devices in the event of a power outage

Table 2: Alert Availability and Eligible Users

AD1 DCC Alerts are triggered by a power device failure. These are not sent by SMETS1 Devices.

AD1 alerts are managed by SMETS2 Service Providers as defined in their individual Code of Connections, e.g., Device Manager SMWAN Gateway Interface defines the interface between the DSP and Device Manager over which the Device Manager sends Power Outage Notifications received from Communications Hubs via the WAN Provider. In this case the Service Provider is Accenture Device Manager (Accenture DM).

The SMETS2 CSPs throttle the number of AD1 Alerts at the CSP, rather than sending all the AD1 Power Outage Notifications over the SM WAN. The following table lists the threshold for each Service Provider at which throttling will occur.

Impacted CSP	Maximum Rate
Accenture (DM)	5000 per minute
CSP North	5000 per minute
CSP S&C	5000 per minute

Table 3: AD1 Throttling by CSPs

Any N56 DCC Alerts are triggered by a SMETS1 Service Provider. The trigger event is the provision of a prepayment top-up Unique Transaction Reference Number (UTRN) from the S1SP in response to a SRV 2.2. N56s are not sent by SMETS2 Devices.

Note that the following two Alerts are typically delivered with failed SRV delivery, and will also be maintained by the EA Service:

- DCC Alert N12, Failure to deliver command to Device
- DCC Alert N13, Failure to receive response from Device

These Alerts already occur for a small percentage of Service Requests and the DSP needs to return those DCC Alerts to the User in order for the User to know the outcome of their request. There is no impact on proposed volumetrics as there is only one response for each failed request.

The following table gives supporting information relevant to the SRVs listed in the requirements above.

SRV	Service Request Name	Command Variants	Eligible Users	Usage
2.2	Top Up Device	1, 2, 3	IS GS	Prepayment top up to maintain supply
4.3	ReadInstantaneousPrepayValues	1, 2, 3	IS GS	Check that a Prepayment device has credit
7.4	Read Supply Status	1, 2, 3	IS, GS, Registered Supplier Agent (RSA) ED, GT	Network Operators use this to check if supply is available to specific premises

Table 4: Service Request Users and Usage

For further details such as Response Codes generated, refer to DUIS or DUGIDS for each Service Request. If a User sends a Scheduled or Future Dated Mode of Operation SRV 2.2, 4.3, or 7.4, then the sending of the SRV remains at that set time, and is not advanced or changed in any way by this solution.

This Preliminary Impact Assessment has been completed based on the provision of functionality in the As Is DSP to meet the requirements.

- Planned Maintenance
- Unplanned Maintenance
- Business Continuity and Disaster Recovery (BCDR) tests that result in a customer facing outage

It should be noted that in a Major Incident scenario, if the DSP is down, it is possible that EA Service would not function, but DCC will undertake reasonable endeavours to ensure availability if possible.

The solution reuses existing DSP motorway components where possible and introduces additional capabilities including DSP message filtering, cache synchronisation, monitoring and controlled traffic redirection to enable rapid activation of the service when required. The solution also includes comprehensive testing, security assurance and coordinated deployment activities across SIT, UIT and Production environments to support a controlled and low-risk transition into live operation.

The As Is DSP proposed solution comprises an alternative deployment of existing DSP motorway components on a dedicated cloud-hosted platform to meet the requirements of the EA Service. The architecture for this deployment is shown below.

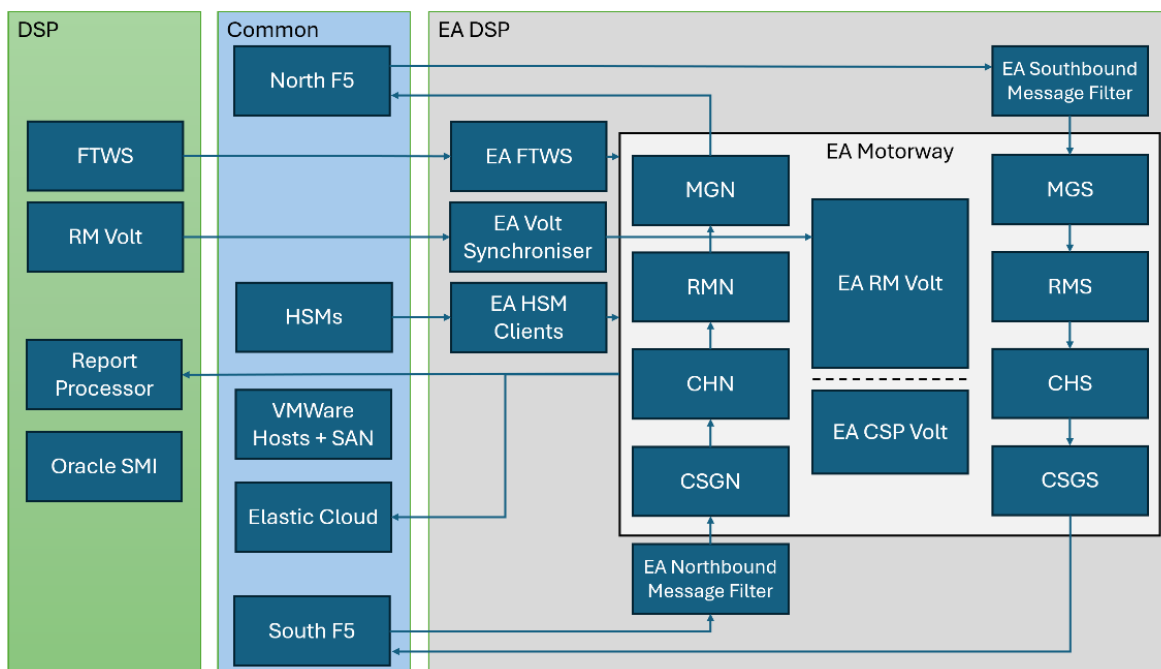


Figure 1: High-Level Architecture of the Enhanced Availability Service

The EA Service will be deployed in standby mode in a Microsoft Azure-based Production Environment but will remain inactive during normal operational use (i.e., it will not be processing Service Requests, Responses, or Alerts). Switching to the EA Service requires a scripted configuration change in the F5 Load Balancers by the DSP team to redirect motorway traffic to the EA Service deployment of the DSP motorway. Reversion to the core DSP deployment requires a similar scripted configuration change by the DSP team to reverse the configuration change.

Use of the EA Service shall be mandated during standard planned outage windows, with the required configuration change applied at the start of each such window. For unplanned outage windows, activation of the EA Service will be possible, subject to agreement between the operational service teams. Activation would be via the same manually initiated scripted configuration change.

Maintenance of the EA Service deployment will be carried out during the Working Day following the successful completion of maintenance on the core DSP deployment, subject to there being no requirement to enable the EA Service on that day. This approach ensures that the EA Service remains aligned with the core DSP functionality.

Several applications required by the EA Service will be shared with the core DSP, as shown by the Common block in Figure 1 above. The availability of the EA Service shall be dependent upon these shared components, including:

- the outer network components (i.e., the F5 Load Balancers)
- the Hardware Security Modules (HSMs)
- the physical servers and Storage Area Network (SAN)

Loss of access to these common components will result in the EA Service becoming unavailable.

Within the EA deployment of the DSP motorway, applications that interact with the Smart Metering Inventory (SMI) shall be removed, or significantly reduced, such that those interactions result in graceful exception processing within the EA Service. Applications that do not interact with the SMI shall remain unchanged. The proposed EA deployment includes the components below.

DSP Component Name	In EA Service?		
Message Gateway South	✓	CSP Gateway North Vodafone	✓
Request Management South	✓	Comms Handler North	✓
Anomaly Detection	✓	Request Management North	✓
COS ACB	✗	Message Gateway North	✓
Comms Handler South	✓	Data Management Web Service	✓
CSP Gateway South	✓	Feature Toggle Web Service	✓
CSP Gateway South Vodafone	✓	Log Monitor	✓
CSP Gateway SMETS1	✓	File Processing Web Service	✗
CSP Gateway North Arqiva	✓	ECOS Gateway	✗
CSP Gateway North VMO2	✓	CSS Gateway	✗
		Master Key Store Web Service	✗
		DSP Access Layer	✗

Because not all components are deployed within the EA Service, not all DSP supporting functions will be available. Services that will not be available include, but are not limited to:

- Service Management incident creation
- Anomaly Detection Threshold (ADT) quarantine services
- response buffering
- install and commission functions
- Switching (CSS) message processing
- Enduring Change of Supplier (ECoS) functions

In cases where a User breaches ADT thresholds, Service Requests are rejected, but are not quarantined for later investigation and release, while the absence of the standard DSP response buffering capability means that responses and Alerts will be delivered to Users as quickly as the EA Service receives them. If a message fails delivery Northbound, it will be logged as failed and discarded.

Although the EA Service does not require access to the SMI, many DSP applications rely on access to the motorway cache services provided by VoltDB. As such, a deployment of the cache is required by the EA Service. To maintain appropriate segregation between the core DSP and EA DSP deployments, the EA Service requires a dedicated instance of the VoltDB cache. Synchronisation between these VoltDB instances shall be provided by a new application component that streams the required data from the core DSP to the EA Service. Some data items will need to be returned from the EA Service to the core DSP, including SMETS1 anti-replay counters. As such, the new application component will also be deployed in the EA Service to stream data back to the core DSP deployment at the point it becomes available following an outage.

Access to functions managed by the EA Service shall be controlled by new filtering components deployed at the boundaries of the EA deployment. At the Message Gateway, SRVs shall be filtered based on only permitted SRVs delivered to CSPs. At the CSP North Gateway, functions will be restricted based on the GBCS Messages Code of received responses and alerts. Attempts to access functions not allowed in the EA Service will result in an error response being returned to the SRV sender in exactly the same manner as would occur during an existing DSP service outage.

To ensure that the EA Service is functioning as required (i.e., that the deployment is complete, and in a position to be activated at short notice), a 'heartbeat' mechanism will be implemented, such that heartbeat messages can be sent through the application. These heartbeats will be internal to the EA Service and will not be delivered to Users, CSPs, or S1SPs.

4.1.1 Selection of Service Requests and Alerts

The list of SRVs and Alerts permitted by the EA Service will be a configurable item, but to change the permitted SRVs or Alerts would require a new SEC Modification. In particular, the EA Service cannot support any SRVs that result in a database update, as this version of the SMI is as a read-only copy to support SRV processing. In addition, available capacity might also be a consideration for any changes.

4.1.2 Application Components

Changes are anticipated as follows.

Data Management	will be updated to support deployment in an environment without an Oracle-based SMI. Calls to the SMI will be written out of the application to allow graceful failure of message processing and to reduce impact to other components.
Motorway Cache Services	The VoltDB-based services will be updated to support selective synchronisation between two (2) instances of the motorway cache. The updates will cover complete synchronisation from core DSP to the EA DSP, and synchronisation of SMETS1 anti-replay counters from the EA DSP to core DSP.
Message Filtering	New components will be deployed at the south and north edges of the EA Service to provide filtering capability. Only messages matching certain criteria will be allowed through the filtering components, non-matching messages will be rejected in a manner that indicates that the DSP is unavailable.

4.1.3 Infrastructure Changes and Disaster Recovery

This solution is both targeted and cost-effective and introduces a dedicated cloud-hosted deployment operating alongside the existing DSP platform. The solution will utilise a new Azure-based infrastructure environment to host the EA Service.

To support the new EA Service, additional Virtual Machines (VM) and associated storage are required for the instances of the DSP applications and databases. Where appropriate, the VMs will host multiple applications to reduce the overall hardware footprint. To reduce the total cost of implementation, any subsequent updates to the EA Service would be deployed as a maintenance release and that there is no requirement for Users to make use of the EA Service in a test scenario.

The new VMs for the EA Service will be provisioned within an Azure Tenancy, built using the Microsoft Enterprise Landing Zone pattern with a Hub VNET hosting an ExpressRoute circuit

for connectivity back to on-premise, and separate VNETs for the Production Environment, SIT-A² and UIT-A³ environments. The VMs per environment are shown in the following table:

Component	Production VMs	SIT-A VMs	UIT-A VMs
Kafka/Redis	1	1	1
Message Filter	4	1	1
Message Gateway	2	1	1
Request Manager	4	1	1
Comms Handler	2	1	1
SMETS2 Gateways	2	1	1
SMETS1 Gateways	2	1	1
RM Volt Primary	5	1	1
CSP Volt Primary	3	0	0

Table 5 - Additional Infrastructure

The SMETS1 and SMETS2 CSP Gateway applications shall be co-located on dedicated VMs to reduce the overall VM count. The size of the CSP VoltDB database has been reduced to reflect the traffic volumes that the EA Service is required to support. The RM VoltDB database shall be sized to align with the existing core DSP Production database, as it is required to store all registrations, certificates and related data for commissioned devices. Note that for the SIT-A and UIT-A environments, the RM Volt and CSP Volt share instances to minimise cost in support of low-volume functional testing.

The EA Service shall reuse the existing networking and cryptographic resources, including F5s, DataPower, Firewalls, HSMs plus network switches etc. However, in the event of a total failure of any one or all of these components, the EA Service will be inoperable. The EA solution will also utilise on-premise management components such as Active Directory, Terminal Servers, Trend DS, and Monitoring Toolsets. The Azure network environment will be a logical network extension of the DSP on-premise network stretched across the ExpressRoute circuit.

The considerations of providing a Disaster Recovery (DR) option for the EA Service are significant both in terms of infrastructure and cost. If the DCC were required to run the EA Service across both the As Is DSP data centres, then this would require additional virtual machines and Volt Database licences at the DR site. The implications of not having the capability at the DR site would be that DCC could not provide the EA Service during a High Impact Maintenance Window (HIMW) if the DSP was operating solely out of the DR site (i.e. the DCC Total System had completely lost the Production site). However, it is extremely unlikely that DCC would want to carry out additional HIMW changes in that scenario. The ROM costs for the addition of the DR site would add a significant amount to the overall cost, and was descope following the approval of the SEC Working Group.

4.1.4 Volumetric assumptions

The solution and infrastructure sizing has been based on the message volumes and transaction rates listed in Table 6 below:

² System Integration Testing, A-Stream

³ User Integration Testing, A-Stream

SRV/Alert	Volume/day	TPS rate	Notes
SR7.4	1,400,000	69	250,000 per hour
SR4.3	6,000,000	181	650,000 per hour
SR2.2	1,600,000	17	60,000 per hour
AD1	1,400,000	250	Max Rate is fixed per CSP at 5000/min, so worst case is all 3 SMETS2 CSPs sending at maximum rate
8F35	1,000,000	28	100,000 per hour
8F36	1,000,000	28	100,000 per hour

Table 6 Volumetric Assumptions

The proposed solution has been designed on the assumption that the Enhanced Availability Service will be utilised for up to twelve (12) HIMWs per year. These periods are currently aligned with scheduled Business-as-Usual (BAU) maintenance activities within operations. This assumption has directly informed and shaped the server and infrastructure requirements for the solution build.

4.1.5 Security

This Modification results in a material change to the DSP security solution; there is the addition of new infrastructure to the DSP in terms of a cloud implementation as well as changes to the F5 Load Balancers and internal firewalls to allow for routing. This will require penetration testing in the SIT-A, UIT-A, and Production environments and there are changes required to the protective monitoring and vulnerability management implementation.

5 Implementation Timescales and Approach

An indicative high-level delivery plan for the scope as set out is provided below. Based on initial estimates and the scope of supply as stated above, it is estimated that this Change will take approximately seven (7) months: June 2026 – December 2026 for the full build and implementation phase.

CR5807 - High Level Delivery Plan							
Planned Days	June	July	August	September	October	November	December
Design	HLD/LLD		DCC Review & Approval				
Build			Onshore Development		Defect Fixing & Support		
PIT				Test Preparation & Execution			
SIT/UIT				Test Preparation		Execution	
Go Live/Operations							Prod Uplift

Figure 2: Indicative High Level Delivery Plan

The Testing Advisory Group (TAG), SEC Parties, DCC and DSP will be engaged in a thorough review of this plan and any potential conflicts with other considerations, such as environment contention and not impacting the November 2026 SEC Release while also not impacting any other components of the DSP or DCC Total System negatively.

5.1 Testing and Acceptance

Pre-Integration Testing (PIT) is carried out by each Service Provider to prove their design and build on separate systems.

For each SEC and Maintenance Release, there is a Post-PIT Change Request that provides the System Integration Testing (SIT) and User Integration Testing (UIT) response for the SEC Release as a whole, covering the testing of individual changes in the scope of the release, as well as activities that are common to all changes in the scope (e.g. test plans, system regression testing, test management and governance).

5.1.1 Pre-Integration Testing

As part of PIT, As Is DSP will produce and execute new or updated tests that demonstrate:

- changes to code for the minimum number of components that will have an “EA instance” to achieve the required solution
- new functionality and software components facilitating synchronisation of VoltDB data to the EA Volt instance, filtering-out SRVs and Alerts that are unsupported, and performing a “heartbeat” function to verify the health of the EA Service
- when the DSP is switched into “Enhanced Mode”, only messages in the allowed set are processed by the EA Service
- the deployment of modified DSP components and switching between “Normal” and “Enhanced” mode in the System Test environment

Performance testing is required on that basis that the EA Service is to subject to non-functional requirements relating to achievable throughput rates as described in Table 6 Volumetric Assumptions. Testing shall cover the required set of SRVs and alerts with benchmarking against the full PIT performance environment. This shall be followed by comparative testing against the simulated reduced EA environment, in order to assess and identify any expected degradation in achievable processing rates or response times.

performance testing will also include verification of northbound rate limiting within the EA Service.

5.1.2 System Integration Testing

For the purposes of this FIA, it is assumed that this Modification will be deployed as part of the December 2026 Maintenance Release, therefore SIT testing will be carried out in the SIT-A environment only. This will be reviewed by DCC and TAG potentially with input from the Testing Design Expert Group (TDEG), and if the plan changes, costs will be revisited.

The DSP SIT team have recommended the following test sets for SIT-A:

- one (1) SMETS2+ Toshiba Comms Hub with ESME, GSME and PPMID
- one (1) SMETS2+ EDM Comms Hub with ESME, GSME and PPMID
- one (1) SMETS2+ 4G Toshiba Comms Hub with ESME, GSME and PPMID
- one (1) SMETS1 IOC Itron Comms Hub with ESME, GSME and PPMID
- one (1) SMETS1 MOC Secure Comms Hub with ESME, GSME and PPMID
- one (1) SMETS1 FOC Trilliant Comms Hub with ESME, GSME and PPMID

DCC are strongly challenging the need for such an extensive test set with such a large impact on costs and duration, when the changes are being made to the DSP only.

The SIT team will plan, prepare, and execute testing to verify the implementation functions as expected when integrated with the DCC Total System. In cases where the core DSP service is available:

- validating SRVs 2.2, 7.4 and 4.3 can be executed successfully
- validating N56 (SMETS1) and SMETS2 Power Outage Alerts (AD1) are generated and received successfully
- validating successful receipt of 0x8F35 and 0x8F36 after Power Outage
- validating successful receipt of N12 and N13 when DSP fails to deliver a request to a device or fails to receive a response from a device

In cases where the core DSP service is unavailable and the EA Service is available:

- verify SRV 2.2, SRV 7.4, and SRV 4.3 are executed successfully
- verify N56 (SMETS1) and AD1s are generated and received successfully
- validating successful receipt of 0x8F35 and 0x8F36 after Power Outage; and
- validating successful receipt of N12 and N13 when DSP fails to deliver a request to a device or fails to receive a response from a device
- ensure that SRVs not supported by the EA are rejected, as expected

Once testing is complete on the EA, when the core DSP service is available:

- verify SRVs are processed successfully

Regression tests would have to be run back on the core DSP when that is returned to service.

5.1.3 Test Volumes

The following figures do not include any testing on device combinations that have not undergone formal SIT for a Release, but also may well be impacted by the DCC challenge listed above.

I&C SMETS2 device SIT A	Automated	192	26/10/2026	06/11/2026	10	85%	9	1.1	211	24.8
I&C SMETS2 device SIT A	Manual	18	26/10/2026	06/11/2026	10	85%	9	1.1	20	2.4
Functional in Core DSP	Automated	168	26/10/2026	06/11/2026	10	85%	9	1.1	185	21.8
Functional in Core DSP	Manual	18	26/10/2026	06/11/2026	10	85%	9	1.1	20	2.4
Functional in EAS DSP	Automated	64	26/10/2026	06/11/2026	10	85%	9	1.1	70	8.2
Functional in EAS DSP	Manual	25	26/10/2026	06/11/2026	10	85%	9	1.1	28	3.3
Totals/Averages		485							534	

Table 7: SIT Test Volumes

5.1.4 User Integration Testing

UIT Testing consists of DSP User Testing Services (UTS) activities and the User testing itself. The DSP UIT Test Team will perform Pre-UTS testing in the UIT-A test environment only. Test Participant(s) will also verify the Modification functionality as part of UIT prior to Go-Live.

UTS setup will run the Service Requests and generate the alerts on one existing SMETS1 and one existing SMETS2 meter set to ensure the environment setting is complete and functioning.

These tests will be run out-of-hours to minimise the impact of the reduced functionality of the EA Service on Test Participants. Once the tests are complete, the EA Service will be switched off and a light-touch regression test against the same meter sets will be performed to ensure the full DSP functionality is available. The light touch regression will consist of those SR2.2s which are sent to ESME and GSME devices only as part of the Credit and Prepayment regression suites. The UIT Monitoring results will also be checked to ensure tests to all SMETS2 CSPs and SMETS1 cohorts remain unaffected by the changes between the EA Service and Core DSP. The number and categorisation of the UIT tests to be run in Pre-UTS is shown in the table below.

CR5807 - Deferment of DCC Planned Maintenance during Adverse Weather						
Test Type	Cost per Test Categorisation	Type	Number of Tests	Re-Test Factor	Total Tests	Notes
Functional (SMETS1)	Complex	Manual	0	1.4	0	
Functional (SMETS1)	Medium	Manual	0	1.4	0	
Functional (SMETS1)	Simple - SRs	Manual	4	1.1	4	SR7.4 / SR2.2 / SR4.3 / AD1 - Power Outage Alert
SMETS1 Regression	Regression Test Packs - SRs	Automated	100	1.1	110	1 x SMETS1 Test Pack (CR and PP suites to the ESME and GSME)
Functional (SMETS2)	Complex	Manual	0	1.4	0	
Functional (SMETS2)	Medium	Manual	0	1.4	0	
Functional (SMETS2)	Simple - SRs	Manual	4	1.1	4	SR7.4 / SR2.2 / SR4.3 / AD1 - Power Outage Alert
SMETS2 Regression	Regression Test Packs - SRs	Automated	100	1.1	110	1 x SMETS2 Test Pack (CR and PP suites to the ESME and GSME)
			208		229	

Table 8: Expected UIT test numbers and categorisations in Pre-UTS

In terms of testing when the service returns from the EA Service to the core DSP, then regression tests would have to be run on the core DSP when that is returned to service.

The scope of the Test Participant testing will be established by discussions with TAG, SEC Parties, and DCC. The User testing would be expected to be carried out outside working hours.

If the UIT testing plan changes, costs will be revisited.

5.1.5 Implementation, Application Support, and Running Costs

It is assumed that this Modification will be deployed as part of a Maintenance Release window, with DSP and DCC providing both applications and environment support for deployment, performing pre and post change application checks, along with enhanced application monitoring during and immediately after upgrades. Activities for monitoring the application health in the environments, include checking:

- all application services are running and available

- application component connectivity
- application logs for errors

These activities are expected to be performed outside of normal business hours.

Application Support costs have been estimated on the basis the change will result in up to two low complexity calls per month that need to be assimilated, investigated, and resolved. If there are no such calls, DCC, and hence Users, will not be charged.

Running costs to support the As Is EA Service solution are anticipated to be of the order of £28,256 per month, which is about £340,000 per year. Note that charges will vary according to the number of times the EA Service is deployed. The estimates assume the EA Service will be utilised for up to twelve (12) HIMWs per year, while Azure cloud costs will be subject to variation based on actual utilisation. These periods are currently aligned with scheduled Business-as-Usual (BAU) maintenance activities within operations.

Application Support (labour) Charges	£499
Infrastructure: Azure Cloud	£18,796
Cloud Team Support	£2,898
SecOps Team Managed Service Charge	£6,064

DCC are currently reviewing the charges for running costs.

6 Costs and Charges

Costs and charges for this Modification are detailed in the sections below. A detailed calculation of the Release costs will be carried out through a "Release CR", also referred to as a "Post-PIT CR", when the contents of the targeted Release are finalised.

Design, Build, and Testing Cost Impact

This section indicates the costs for all phases of application development for this Modification. Note these costs assume a release of just this SEC Modification without any other Modifications or Change Requests in the release.

6.1

£	Design, Build, and PIT	Integration Testing, SIT and UIT	Application Support	Total
SECMP0304	878,258	414,792	21,440	1,314,489

Design	The production of detailed System and Service designs to deliver all requirements.
Build	The development of the designed Systems and Services to create a solution (e.g., code, systems, or products) that can be tested and implemented.
Pre-Integration Testing (PIT)	Each Service Provider tests their own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.
Systems Integration Testing (SIT)	All the Service Provider's PIT-complete solutions for a Release are brought together and tested as an integrated solution, ensuring all SP solutions align and operate as an end-to-end solution.
User Integration Testing (UIT)	Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.
Application Support	The Application Support team is responsible for the provision of application level support for the DCC Total System. This Change will not result in a significant increase in support required.

6.2

In addition, annual running costs are estimated at **£340,000**. This figure may change based on the amount and frequency of usage of the cloud-based solution.

Contract Amendments

This Modification will be approved against the existing DSP contracts, through a Contract Amendment Note (CAN). The contract updates will be detailed within the CAN and will impact the following schedules:

- Schedule 2.1, DCC Requirements

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- Schedule 2.2, Performance Measures and Monitoring: update to reflect availability only when in operation
 - Schedule 3, DCC Responsibilities: update to reflect the addition of new DCC Responsibilities to complete this Modification
 - Schedule 4.1, Contractor Solution: Solution Design documents will need to be updated
 - Schedule 6.1, Implementation Planning: addition of new Milestones
 - Schedule 7.1, Charges and Payment

There will be no updates to any other schedules not listed above as a result of this Modification.

7 RAID and Design Decisions

In the following sections, any Risks, Assumptions, Issues, and Dependencies (RAID) have been identified, and Design Decisions listed.

Risks

Ref	Description	Status/Mitigation
SECMP293-R1	SIT and UIT will be conducted in the SIT-A and UIT-A environments.	Open, plan to be approved
SECMP293-R2	The extremely compressed nature of the implementation timelines for this change requires rapid governance and approval by SEC sub-committees, SEC Change Board, DCC In Life Change, and other DCC programmes. If this is not achieved, implementation and release could be pushed back, negatively impacting the business case.	Open, SEC parties, governance functions, and sub-committees are being asked on a best endeavours basis to accelerate timelines
SECMP293-R3	The extremely compressed nature of the planned implementation timelines could impact DCC Total System quality	Closed, a complete testing cycle will be agreed with SEC governance including TAG.
SECMP293-R4	Traffic on the EA Service is not subject to full ADT restrictions, i.e., Quarantine functionality	Accepted, but ADT threshold limits apply to selected SRVs and Alerts for only the duration of the EA service.
SECMP293-R5	The EA Service shall reuse the existing networking and cryptographic resources, including F5s, DataPower, Firewalls, HSMs plus network switches etc. In the event of a total failure of any one or all of these components, the EA Service will be inoperable.	Accepted, Closed

Assumptions

Ref	Description	Status/Mitigation
SECMP293-A1	The core DSP service will not be available while the EA Service is under test, therefore daily regression testing in the SIT-A environment may need to be paused throughout this period.	Accepted, Closed
SECMP293-A2	To reduce the total cost of implementation, any updates to the EA Service will be deployed as a maintenance release and assume there is no requirement for Users to make use of the EA Service in a test scenario.	Accepted, Closed

SECMP293-A3	ROM Pricing is on expansion of the existing data centre-based infrastructure. It may be possible to implement the EA Service within public cloud, which would have the advantage of decoupling the EA Service from DSP- hosted infrastructure and potentially further reduce non-availability risk in specific failure scenarios. DCC will investigate this option as part of a future FIA.	Closed, Cloud solution
SECMP293-A4	The EA Service cannot support any SRVs that result in a database update.	Accepted, Closed
SECMP293-A5	DCC could not provide the EA Service during a HIMW if the DSP were operating solely out of the DR site (i.e. the DCC Total System had completely lost the Production site).	Accepted, Closed
SECMP0293-A6	SIT and UIT will be conducted in the SIT-A and UIT-A environments.	Open, plan to be approved with governance and sub-committee approval

Issues

SECMP293-I1	The crowded nature of the releases calendar from June 2026 – February 2027 will make planning the release of this Modification challenging.	Accepted, DCC, SECAS, sub-committees, and CGI are all working on the best possible, achievable timelines and delivery
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Dependencies

SECMP293-D1	An acceptable release date and programme plan will be agreed quickly enough, to allow for a satisfactory and achievable programme plan.	Accepted, DCC, SECAS, sub-committees, and CGI are all working on the best possible, achievable timelines and delivery
SECMP293-R2	SIT and UIT will be conducted in the SIT-A and UIT-A environments.	Open, plan to be approved

Design Decisions

DCC recommended the approach of As Is DSP, delivery of “Must and Should” Requirements with no extended DR functionality. This was approved at the April SEC Change Board.

The considerations of providing a Disaster Recovery (DR) option for the EA Service are significant both in terms of infrastructure and cost. If the DCC were required to run the EA Service across both the As Is DSP data centres, then this would require additional virtual machines and Volt Database licences at the DR site. The implications of not having the capability at the DR site would be that DCC could not provide the EA Service during a High Impact Maintenance Window (HIMW) if the DSP were operating solely out of the DR site (i.e. the DCC Total System had completely lost the Production site). However, it is extremely unlikely that DCC would want to carry out additional HIMW changes in that scenario. The ROM costs for the addition of the DR site would add a significant amount to the overall cost, and was descope following the approval of the SEC Working Group.

An option to accelerate testing was considered, by running both core DSP and the EA service at the same time. Unfortunately, one of the (technical) requirements for the EA Service is that it must be on the same DUIS URL(s) as the core DSP service, so that Users do not have to make a change when the system switches from core DSP to the EA Service. If the URLs are unchanged then the routing at the F5 Load Balancers have to forward requests to one and only one DSP. If a design required the F5 to dynamically choose between one or the other DSP then this would need to implement a set of rules in the F5 about which requests go to core DSP and which go to the EA Service. This would be prohibitively costly and time consuming.

While the list of selected SRVs and Alerts included in the EA Service is configurable, SECAS and the business proposer decided that any change to the configuration need not be implemented quickly, and any changes would require a new Modification.

Delivery of an EA Service is strictly limited to the As Is DSP, and progress on similar changes to functionality for Future DSP, CSP North, CSP South and Central, 4G Comms Hubs, and any of the SMETS1 Service Providers were not approved at the April 2026 SEC Change Board.

Appendix A: Glossary

Acronym	Definition
ADT	Anomaly Detection Threshold
BAU	Business As Usual
BCDR	Business Continuity and Disaster Recovery
Comms Hub	Communications Hub
CAN	Contract Amendment Note
CR	Change Request
CSP	Communications Service Provider
DCC	Data Communications Company
DM	Device Manager
DR	Disaster Recovery
DSP	Data Service Provider; the As Is DSP (also known as DSP1) and / or Future DSP (DSP2)
DUGIDS	DCC User Gateway Interface Design Specification
DUIS	DCC User Interface Specification
EA	Enhanced Availability, the EA Service
ECoS	Enduring Change of Supplier
ED	Electricity Distributor (Eligible Role)
ESME	Electricity Smart Metering Equipment
FIA	Full Impact Assessment
GBCS	Great Britain Companion Specification
GS	Gas Supplier (Eligible Role)
GSME	Gas Smart Metering Equipment
GT	Gas Transporter (Eligible Role)
HIMW	High Impact Maintenance Window

IS	Import Supplier (Eligible Role)
MAP	Meter Asset Provider
NO	Network Operator
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
POA	Power Outage Alert
PPMID	PrePayment Meter user Interface Device
ROM	Rough Order of Magnitude (cost)
RSA	Registered Supplier Agent
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
S1SP	SMETS1 Service Provider
S1SR	SMETS1 Supporting Requirements
SMETS	Smart Metering Equipment Technical Specification
SMI	Smart Metering Inventory
SM WAN	Smart Metering Wide Area Network
SR	Service Request
SRV	Service Reference Variants
TAG	Testing Advisory Group
TDEG	Testing Design Expert Group
TRT	Target Response Time
UIT	User Integration Testing
UTRN	Unique Transaction Reference Number
UTS	User Testing Services
VM	Virtual Machine
WAN	Wide Area Network

Appendix B: Volumetrics Recorded During Storms

The following table shows the daily maximum values of specific SRVs and Alerts recorded both during Met Office named storms and peak values throughout 2025.

Hourly volumes will be included and analysed as part of the FIA.

Storm	Date	Met Office Rating	Daily Maximum (millions)				
			7.4	AD1	2.2	4.3	N56 (and S1UT)
Ashley	18-21 Oct 2024	Amber and Yellow	n/a	0.28	n/a	n/a	n/a
Bert	22-25 Nov 2024	Yellow	0.54	0.37	0.88	3.13	n/a
Conall	26-27 Nov 2024	Yellow	0.56	0.13	0.66	2.92	n/a
Darragh	5- 9 Dec 2024	Red	0.71	0.99	0.75	3.04	n/a
Eowyn	21 -27 Jan 2025	Red	0.71	0.56	0.87	3.14	n/a
Floris	4-5 Aug 2025	Amber	0.69	0.21	0.7	3.8	0.22
Amy	3-4 Oct 2025	Amber and Yellow	0.74	0.28	0.82	4.17	0.25
Bram	8-9 Dec 2025	Amber	0.73	0.2	0.89	4.06	0.26
Peak	2025	Millions (date)	1.08 (13/10)	0.3 (1/10)	1.29 (20/10)	5 (19/9)	0.33 (4/12)

Analysis for the 8F35 and 8F36 Alerts showed the highest hourly rate for the two Alerts combined was just under 60,000 per hour, with a potential maximum rate of 100,000 per hour.

Note that the number of Smart Meter installations on premises and corresponding messages increased from ~30.5million at the start of October 2024 to ~37million in mid-December 2025.