

# **SEC Modification Proposal, SECMP0039**

## **Communications Hub Returns Notification Mechanism for Other SEC Parties**

### **Full Impact Assessment (FIA), DCC CR 305**

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# 1 Document History

## 1.1 Revision History

Revision Date	Revision	Summary of Changes
29/10/2018	0.5	Compilation from Service Providers, requested changes
	0.6	Internal DCC Review
04/12/2018	0.7	Included all DCC internal review comments, and responses to clarifications from Service Providers

## 1.2 Associated Documents

This document is associated with the following documents:

Title and Originator's Reference	Source	Issue Date
SECMP0039 Solution Design Specifications	<a href="https://smartenergycodecompany.co.uk/download/4743">https://smartenergycodecompany.co.uk/download/4743</a>	06/02/2018
SECMP0039 - Modification Proposal Form	<a href="https://smartenergycodecompany.co.uk/download/586">https://smartenergycodecompany.co.uk/download/586</a>	24/07/2017

## 2 Introduction

This modification seeks to amend the SEC and DCC's systems to provide Suppliers with a means of performing quality assurance and fault diagnostics on SMETS2 devices returned by meter operatives.

### 2.1 Document Purpose

The purpose of this Full Impact Assessment (FIA) is to provide the relevant Working Group with the information requested in accordance with SEC Section D6.9 and D6.10.

This modification is to allow all SEC Parties who order Communication Hubs a mechanism to notify the DCC of fault or no fault returns and receive appropriate responses, thus enabling all ordering Parties to execute a complete ordering and returns process.

### 2.2 Previous Document Information

The original Proposer for this Modification was Jason Winstanley of Lowri Beck Services Ltd.

The Preliminary Impact Assessment was provided by DCC in May 2018.

### 2.3 DCC Contact Details

Please raise any queries regarding this DCC Impact Assessment using the email contact details provided below.

**Name** DCC - SEC Modification queries

**Contact email** [mods@smartdcc.co.uk](mailto:mods@smartdcc.co.uk)

### 2.4 Context

The following text was provided by the Modification Proposer.

Currently two mechanisms exist for a SEC Party to raise a request to return a Communication Hub (CH) to the DCC:

- The Party can send either Service Request Variant (SRV) 8.14.3 'Communications Hub Status Update – Fault Return' or SRV 8.14.4 'Communications Hub Status Update – No Fault Return'; or
- The Party can contact the DCC Service Desk.

Currently, the only Eligible Users for SRVs 8.14.3 and 8.14.4 are Import Suppliers (IS) and Gas Suppliers (GS). All other Users can only raise a return request via the DCC Service Desk.

This modification seeks to allow all SEC Parties the option to be able to notify the DCC of fault or no fault returns using the two SRVs.

### 2.5 Requirements

The primary business requirements are as follows.

Requirement 1	<p>All Communication Hub owners will be able to submit SRV 8.14.3 and SRV 8.14.4</p> <p>This will extend the list of Eligible Users listed in the DCC User Interface Specifications (DUIS) for the above Service Requests (SRs).</p> <p>This requirement will not prevent any Eligible User from using alternative initiation methods such as contacting the DCC Service Desk.</p>
Requirement 2	<p>The additional Eligible Users will only submit these SRVs prior to installation. Following installation, the returns process will only be triggered by the relevant Supplier.</p> <p>In the case of a post-installation return, only Registered Supplier Agents (RSAs) would remove and return the CH once the Supplier had raised the request, received the necessary information and passed this to the RSA.</p>

Based on the discussions at the Working Group and the Business Requirements as set out in the Solution Design Document, DCC consider the requirements for SECMP0039 to be **STABLE**.

## 2.6 Description of Solution

For the requirements identified above. SECAS has recommended solutions as follows.

In order to allow all Communication Hub owners to initiate a CH Return process by way of Service Requests, DCC Data Systems shall introduce the following changes.

1. Allow additional SEC Parties to notify Comms Hub Returns via the Service Requests 8.14.3 and 8.14.4
2. Introduce a validation check to make sure that only the Energy Suppliers are allowed to submit 8.14.3 or 8.14.4 if it's related to an already installed Comms Hub.

### 2.6.1 High Level Solution

DCC Data Systems will modify the behaviour of the following Service Requests such that in addition to EIS (Electricity Import Supplier) and GIS (Gas Import Supplier) roles, SNAs (Supplier Nominated Agents) will also be permitted to use these to notify Comms Hub Returns.

1. SRV 8.14.3 Communications Hub Status Update – Fault Return
2. SRV 8.14.4 Communications Hub Status Update – No Fault Return

Although the original SECMOD and Change Request sought to allow all SEC party roles to access these SRVs, DSP believes that allowing SNAs alone are sufficient to handle the reported issue. This is consistent with the PIA response.

Only the parties in the role of EIS or GIS are permitted to notify a return of Comms Hubs using the above SRVs after they are installed. DCC Data Systems should process SRVs 8.14.3 or 8.14.4 submitted by SNAs only for the Comms Hubs with status 'Pending' in the Device Inventory.

If a SNA attempts to notify return of a Comms Hub after it has been installed, the Service Request shall be rejected with the existing error code E5. Please note that this validation check will rely only on the latest information available in the Device Inventory.

### **2.6.2 Solution Constraint**

DCC and the associated Service Providers are conscious about the urgency of this change and therefore proposes the overloaded usage of the error code E5, instead of introducing a dedicated error code, to reduce the implementation time and to avoid the overheads associated with DUIS version uplift. In future if it is felt necessary to have a dedicated SRV specific error code to handle this scenario, it can be handled via a separate CR.

### 3 Impact on DCC's Systems, Processes and People

This section describes the impact of SECMP0039 on the DCC Total System services and interfaces that impact Users and/or Parties.

This SEC Modification specifically allows all SEC Parties who order Communication Hubs, a mechanism to notify the DCC of fault or no fault returns and receive appropriate responses. This allows all ordering Parties to execute a complete ordering and returns process.

#### 3.1 DUGIDS, DUIS and MMC

As noted in section 2.6.2 above, the DUIS schema will not be modified to implement this change on the basis that error code E5 can be overloaded.

The DUGIDS documentation related to SRV 8.14.3 and 8.14.4 will be updated to reflect the additional user role it is required to support. The DUGIDS main document will be updated such that the notes related to the error code E5 is updated to describe the additional scenario.

The following table describes the general attributes of the SRVs that are impacted due to this change.

Service Reference	Service Reference Variant	Name	Critical	Sensitive Response	Protection Against Replay	On Demand	Future Dated	DSP Scheduled	DCC Only	Eligible User Role	SMETS1 Applicability
8.14	8.14.3	Communications Hub Status Update. – Fault Return	No	No	No	No	No	No	Yes	EIS GIS SNA	No
8.14	8.14.4	Communications Hub Status Update – No Fault Return	No	No	No	No	No	No	Yes	EIS GIS SNA	No

Table 1: SRV Matrix

##### 3.1.1 Request Management

Request Management will be modified to implement the validation check.

##### 3.1.2 Data Management

Data Management will be updated to make the configuration changes required to grant access to the additional user roles to the SRVs 8.14.3 and 8.14.4. No changes are expected to the Data Model.

#### 3.2 Infrastructure Impact

This Preliminary Assessment has identified that there will be no additional hardware specifically related to this change.

Note: This change on its own would not warrant the procurement of additional infrastructure. However, the aggregated impact of many similar changes will eventually warrant the procurement of additional CPU, storage and associated hosting and



management charges. There may be a need to raise a separate change to cover associated costs. For the purposes of this impact assessment any future costs are not attributable to this CR.

### 3.3 Impact on Interfaces

The proposed solution does not require changes to any of the DCC Total System interfaces.

There is no Impact on processing, storage and/or transmission of the DCC Data.

### 3.4 Non Functional Impacts

#### 3.4.1 Impact on Performance

This change does not have any impact on performance.

#### 3.4.2 Impact on Resilience

This change does not impact the underlying resilience of the DCC Total System.

#### 3.4.3 Impact on Disaster Recovery

This CR does not change the Disaster Recovery solution or Business Continuity and Disaster Recovery (BCDR) procedures.

### 3.5 Impact on Systems Safety and HSE

Although failures of the proposed notification functionality could impact logistical management of Comms Hub devices, leading to operational inconvenience or a financial impact if for example the device inventory were incorrectly maintained, there is no direct or credible systems safety risk associated with this change. There are no credible safety risks associated with the new functionality responsible for Comms Hub logistics management prior to installation of the devices, which contrasts with for example misconfiguration of operational Comms Hub devices connected to DCC's production network (ref. DSP FMECA, DQ.0019). Furthermore, it has been discussed and agreed between the SPs and the DCC that DUIS SRVs 8.14.3 and 8.14.4 present no credible safety risk (ref. DSP SHAR, DQ.0005).

No new types of hardware infrastructure are identified in this CR and, therefore, there is no foreseeable HSE impact. For the purposes of this Safety Impact Assessment, it is assumed that the proposed functionality will be accommodated within existing types of DSP infrastructure which have already been subject to DSP S&E assessment.

### 3.6 Deliverables

The deliverables are as described in the table.

Deliverable	Changes Required
SD4.1 DCC User Gateway Interface Specification	Documentation updates to describe the newly supported role and the error code behaviour change.

### **3.7 Request Management**

Request Management needs to implement the necessary validation checks needed for the new SRVs, along with any business logic and transformation to the new GBCS Use Cases.

Based on the response to these SRVs from the devices, Request Management shall also initiate inventory updates in the northbound processing flow. The management of device status within the inventory is expected to be impacted by this new process, with changes required in a number of places to allow these “variant” steps to be followed.

### **3.8 Impact on SP Services**

It is expected that this change will have a material impact on Services and the Application Management Support (AMS) Team will need their standard handover and knowledge transfer from the various development teams including any additional security or database aspects introduced. Thereafter, as part of transition into service, handover from PIT, ongoing SIT support and UIT support including deployments will be provided. Knowledge transfer will be cascaded throughout the application management team. For the initial service, AMS will provide early life support to make adjustments and provide guidance to DCC Service Desk and DCC Service Management on any issues arising when SEC Parties make use of this new functionality.

For ongoing support, a small uplift has been included to operational charges below to cover an estimated one call per month to respond to initial queries in relation to the new functionality.

### **3.9 Contract Schedules**

Contract updates will be required for this change. The detailed updates will be determined as part of the resulting Contract Amendment Note (CAN). It is expected to impact the following schedules:

- Schedule 6.1: A new milestone or milestones will be added to reference completion of implementation of this change
- Schedule 7.1: Will be updated to include an increased payment against the completion milestones and the Operational Charge will be increased

Cost for these changes are included in the costs section following.

### **3.10 Impact on Security**

No material security risks have been identified by the security assurance team’s review of the proposed solution. In particular, there is no change to the security or access models, no additional data that could be considered sensitive is being processed, there are no new interfaces, and although the existing interfaces require some minor change, this does not present any new attack vectors.

There is no requirement for additional penetration testing or protective monitoring coverage.

There is a need for some general assurance support during the implementation including:

- Support to the Implementation and SIT Teams during implementation and integration

- Review of design documentation to ensure alignment with contractual security obligations
- Review of test artefacts and outcomes where there is a potential security consideration
- Attendance at meetings where required by the PIT Team to advise on security

## 4 Testing Considerations

This section describes the testing phases required to support the implementation of SECMP0039. Note that only Testing Tools and Pre-Integration Testing costs are included in the cost estimates following.

### 4.1 Summary

Following initial assessment and responses from impacted workstreams, this will require PIT regression testing and PIT System testing of the new functionality brought in by this Modification, including:

- 2 cycles of PIT regression testing of Communications Hub
- 1 cycle of PIT regression testing of BSS solution
- PIT testing of Communications Hub new functionality: new GBCS messages expected (awaiting outcome of CRP) and new SRVs

### 4.2 Framework and Testing Tools

#### 4.2.1 GFI Testing Tool

The GFI Testing Tool will be enhanced to support the new use cases CS02f and CCS07 with new tests, encoding and decoding of the new GBCS messages, and execution of these use cases in an emulated scenario. This includes:

- Create new classes to encode and decode new GBCS messages
- Create new test case classes
- Create new test case specifications
- Extend the functionality of the ESMEEmulator, GSMEEmulator and CHFEmulator components to support the execution of the new use cases in an emulated scenario

#### 4.2.2 GFI CommsHub

The GFI CommsHub will be enhanced to support the new use case CCS07. Additionally the ZigBee meter emulators used to test the GFI CommsHub will be enhanced to support testing the disconnection of a Smart Meter from the HAN (use case CS02f). This includes:

- Support CCS07 in the CommsHub
- Support CS02f in ZigBee meter emulators

#### 4.2.3 Reference Test Data Set (RTDS)

The RTDS data set will be enhanced with examples of GBCS payloads, DUIS requests and MMC responses for all 3 new service requests. Both success and error scenarios (when applicable) will be included.

### 4.3 Pre-Integration Testing

Pre-Integration Testing comprises the tests that each Service Provider performs on its respective System changes, prior to the integration of all Service Provider systems. DCC has factored the cost of PIT, including DCC assurance, into this Impact Assessment. Suggested PIT scope would include:

- Production, review and agreement of a design to enable development

- Low level design production, development, unit test and any rework to achieve PIT complete status
- Data generation and loading into the Test environment
- Execution of System Tests through sufficient iterations to enable PIT complete
- Design, implementation and execution of scripts in accordance with assurance procedures used for Release 1.2
- Achieving PIT complete status and subsequent reporting

#### **4.4 Systems Integration Testing**

Systems Integration Testing (SIT) is the testing of the DCC Total System, which brings together the components, e.g., DSP and CSP Systems, to allow testing of the end-to-end solution by DCC. SIT is carried out for every DCC System release and incorporates the test and integration of multiple changes. As such the costs of SIT are not included in this assessment.

Additional SIT is recommended by DCC for a modification of this type. It should however be noted that the scope of SIT is likely to be more focused on regression testing to confirm that the changes applied as part of this modification have not had an impact on the wider DCC Total Systems.

Suggested SIT scope would at a high level typically include:

- System Test script and data design
- Data generation and loading into a co-ordinated System Test environment
- Execution of System Tests through sufficient iterations to enable SIT complete

#### **4.5 User Integration Testing**

User Integration Testing enables Users to run specific tests to support their implementation of a change. DCC expects that UIT will be required to support user implementation of this modification.

Individual changes are collected into a DCC release. In order to achieve more efficient User Integration Testing for all parties, the DCC will coordinate specific testing requirements for all changes that comprise a release and issue a testing release approach document. As such the costs of UIT are not included in this assessment.

## 5 Implementation Timescales and Testing

### 5.1 Timescale

It is assumed that this change will be implemented as part of an interim release alongside a pipeline of other work, but after Release 2.0 goes into Production. The change will be implemented using a waterfall methodology such that a pre-integration implementation phase, consisting of design, development and system testing will precede a formal Systems Integration Test phase. The pre-integration phase is expected to take approximately four months and the Systems Integration execution Testing phase is expected to follow in months five and six. Therefore, the change will be ready to schedule to a production release after approximately six months. Work will proceed once full commercial cover has been provided, that is once there is an agreed and signed CAN.

### 5.2 Testing and Acceptance

This change includes the standard test phases as documented in schedule 6.2 and standard exit criteria will apply:

- Pre-integration Testing: DSP will provide a summary output to confirm tests executed and Schedule 6.2 exit criteria compliance;
- Systems Integration Testing: Existing scripts will be updated, and positive path tests will be executed. SIT could be executed on either SIT-A or SIT-B depending on whether the change is implemented as a patch to the production release or as part of a new release.
- User Integration Testing: Any testing required for the existing SRs 8.14.3 and 8.14.4 will be undertaken as part of Testing Services on the assumption that DCC CR279 is agreed and enables inclusion of new functional changes (CR279 FIA version 1.1 would enable this change to be tested with no further charges on either the UIT-A or UIT-B environment).

## 6 Costs and Charges

The activities described in this Full Impact Assessment have been carried out on a Fixed Price basis in accordance with Part E of Schedule 8.2. The labour price has been calculated at proposed Schedule 7.1 rates for the 2018-2019 contract year.

Prices are based on resources working normal working hours as defined by Schedule 7.1 with the exception of deployment activities which may take place outside normal working hours but not including any Sunday working.

The charges are exclusive of VAT and bank finance charges. The Working Capital Charge will be calculated at the time of CAN generation as it is dependent on agreement of payment milestones.

### 6.1 Design, Build, and Testing Cost Impact

The table below details the cost of delivering the changes and Services required to implement this Modification.

Implementation Costs							
Phase	Design	Build	Pre-Integration Testing	System Integration Testing	User Testing	Implement to Live	Total
SECMP0039	Total £201,650			Not included	Not included	Not included	£201,650
Supplementary Information							
Implementation cost assumptions	<p>A. Costs are exclusive of VAT and any applicable finance charges</p> <p>B. Majority of the costs above represent labour costs.</p> <p>C. Costs provided for Design, Build and Pre-Integration Testing are quotes provided by the Service Providers with specific exclusions of costs as identified above. DCC have reviewed and challenged the costs from the Service Providers to ensure this reflects best price to date.</p> <p>D. Costs will be refined during future assessments.</p>						
Explanation of Implementation Phases	<p>DCC's implementation costs are provided by implementation phases. The following describes the purpose of each phase:</p> <ul style="list-style-type: none"><li>Design: The production of detailed System and Service design to deliver all new requirements.</li><li>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.</li><li>Pre-integration Testing: Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.</li></ul>						

	<ul style="list-style-type: none"> <li>• <i>System Integration Testing: All Service Providers' PIT-complete solutions are brought together and tested as DCC's Total Solution, ensuring all Service Provider solutions align and operate as an end to end solution.</i></li> <li>• <i>User Integration Testing: Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.</i></li> <li>• <i>Implementation to Live Costs: The solution is implemented into Production environments and ready for use by Users as part of a live service. This service is subject to implementation costs.</i></li> </ul>
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## 6.2 Operational Costs

Operational costs include support for additional functionality for the duration of the contract including an initial snagging/query period of 1 month incubation support and 2 medium complexity calls per month on average relating to additional functionality. The Full Impact Assessment Cost Model for Enduring Application Management has been estimated at a cost of £811 per month, and a total of £22698 for a 28 month period for a potential Go Live to the end of the Service Provider contract.

## 6.3 Impact on Levied Charges

This section describes the potential impact on Charges levied by DCC in accordance with the SEC.

DCC notes that SECMP0039 does not propose any changes to the charging arrangements set out in SEC Section K. DCC has assumed that, in the absence of an agreed alternative arrangement by the Working Group, the costs associated with the implementation of SECMP0039 will be allocated to DCC's fixed cost based and passed through to Parties via Fixed Charges.

Subject to the commercial arrangements put in place to support the relevant Release, DCC expects the increase in Charges associated with the implementation of SECMP0039 to commence in the month following the Modification implementation.



## 7 Risks, Assumptions, Issues, and Dependencies

In the following sections, Risks, Assumptions, Issues, and Dependencies have been identified.

### 7.1 Risks

Ref.	Area	Description	Impact
MP39-DR1	UIT Testing	Any testing required for the existing SRs 8.14.3 and 8.14.4 will be undertaken as part of Testing Services on the assumption that DCC CR279 is agreed and enables inclusion of new functional changes (CR279 FIA version 1.1 would enable this change to be tested with no further charges on either the UIT-A or UIT-B environment).	High

### 7.2 Assumptions

Ref.	Area	Description	Accepted
MP39-DA1	Error Code	Error code E5 will be overloaded	
MP39-DA2	Changed Requirements	Any further changes to requirements after submission of this FIA will be chargeable under implementation costs for this change	

### 7.3 Issues

None at this time.

### 7.4 Dependencies

Ref.	Dependency	Impact
M39-DD1	Full commercial cover in the form of a signed CAN is required for DSP to carry out any work in relation to this change.	High impact on the timescales.

## Appendix: Glossary

The table below provides definitions of the terms used in this document.

<b>Acronym</b>	<b>Definition</b>
AMS	Application Management Support
BCDR	Business Continuity and Disaster Recovery
CAN	Contract Amendment Note
CH	Communications Hub, Comms Hub
CR, CRP	Change Request, BEIS Change Request
CSP	Communication Service Provider
DCC	Data Communications Company
DSP	Data Service Provider
DUGIDS	DCC User Gateway Interface Design Specification
DUIS	DCC User Interface Specification
EIS	Electricity Import Supplier
FIA	Full Impact Assessment
GBCS	Great Britain Companion Specification
GFI	GBCS Integration Testing For Industry, a testing tool
GIS	Gas Import Supplier
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
SEC	Smart Energy Code
SIT	Systems Integration Testing
SNA	Supplier Nominated Agent
SP	Service Provider
SR	Service Request
SRV	Service Request Variant
UIT	User Integration Testing