

SEC Modification Proposal, SECMP0176

Customer Analytics Reporting

Preliminary Impact Assessment (PIA)

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1 Executive Summary

The Change Board are asked to approve the following:

- Total cost to complete the Full Impact Assessment (FIA) of £30,000
- The timescales to complete the Full Impact Assessment of 30 days
- ROM costs for SECMP0176 delivery of £130,000

The total ROM costs to deliver SECMP0176 are £130,000, which includes Design, Build and PIT, and a tolerance of $\pm 25\%$.

Problem Statement

As part of SECMP0122A the DCC provides SEC Parties through the SEC Operations Group with industry wide level of reporting on the timings, success or failure of Service Reference Variants (SRVs) relating to key customer business processes. This reporting applies to all SEC Parties in an anonymised view.

Benefit Summary

This Modification will provide a standardised set of benchmarked individualised reports to all DCC Users which will enable them to identify their performance for key business processes in comparison to their peers and to allow them to diagnose reasons for poor performance so that they can take steps to address it.

Additional support costs for this reporting will be absorbed into the existing Business As Usual (BAU) support structure already in place.

2 Document History

2.1 Revision History

Revision Date	Revision	Summary of Changes
06/12/2021	0.2	DCC Internal Review
10/12/2021	0.4	Revised and published

2.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Originator's Reference	Source	Issue Date
1	MP176 Modification Report	SECAS	17/11/2021
2	MP176 Business Requirement v0.2	SECAS	17/11/2021
3	MP176 Legal Text v0.1	SECAS	17/11/2021
4	MP176 Preliminary Assessment Request	SECAS	17/11/2021

References are shown in this format, [1].

2.3 Document Information

The Proposer for this Modification is Easton Brown from the Data Communications Company (DCC).

The Preliminary Impact Assessment was requested of DCC on 17th November 2021.

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.

3.1 Problem Statement

Following the implementation of SECMP0122A, the DCC provides SEC Parties through the SEC Operations Group with industry wide level of reporting on the timings, success or failure of Service Reference Variants (SRVs) relating to key customer business processes. This reporting is an anonymised view of reporting which does not provide customers with a view of their own performance, how they compare with other SEC Parties, or the ability to simply diagnose factors (Devices, Firmware, Geographic Location, Orchestration) that could be affecting their performance against key business processes, which in turn reduces the ability of Users to drive improvement, and the ability of the DCC to assist them in doing so.

The Proposer seeks to provide a standardised set of benchmarked reporting to all DCC Users which will enable them to identify their performance for key business processes in comparison to their peers and to enable them to diagnose reasons for poor performance so that they can take steps to address it. The DCC's workshops with DCC Users (including Import Suppliers, Export Suppliers, Gas Suppliers and Electricity Distributors) and via DCC's Quarterly Finance Forum provided a unanimous view that this should be implemented via a SEC Modification as it would mandate receipt of this information by all Parties and therefore offer equal benefit to them.

3.2 Business Context and Requirements

During the initial development of SECMP0122, the reporting requirements were dimensioned by SRV and Region. To better understand the shortcomings in performance, the DCC extended the reporting model to Device and Party levels, which revealed a significant disparity in performance levels between DCC Users across several key business processes. As not all SEC Parties have the reporting capabilities to assess their own performance against these key metrics, they have a reduced ability to drive improvement within their own businesses and in their interactions with the DCC. The inability to identify areas of concern can lead to delays in industry processes and have financial and reputational costs across all Parties.

3.3 Business Requirements

This solution will be applied to Smart Metering Equipment Technical Specifications (SMETS) 1 and SMETS2+ Devices.

The DCC will provide anonymised league tables for key business processes, identifying average performance per Smart Energy Code (SEC) Party for that Business Process and identifying the positioning on those league tables of only the SEC Party to whom that report is directed. DCC Customer Analytics Reporting will not share any Device Level data with any party other than the target SEC Party. Any SEC Party which is active in DCC Systems can request a new report to be added to the Customer Analytics Reporting suite, or request a change to an existing report, by making a request to a DCC group mailbox, but additional design, build and test costs will be incurred.

Ref.	Requirement
1	For the User Roles: Import Supplier, Export Supplier, Gas Supplier, Electricity Distributor and Other User, the DCC will provide inventory reporting identifying the User's Metering Estate.
2	The DCC shall provide reporting to its Users on the business processes defined in the Customer Analytics Reporting, which will include a view of the Users' performance against anonymised performance data for all Parties in the same User Role.
3	The DCC shall provide reporting on DCC and Device Alerts received by an Import Supplier, Export Supplier or Gas Supplier, which will consist of a total of all Alerts and individual reporting for each Alert, to the relevant Users.

Requirement 1: For the User Roles: Import Supplier, Export Supplier, Gas Supplier, Electricity Distributor and Other User, the DCC will provide inventory reporting identifying the User's Metering Estate

1. A single bar graph for each Device Type (Electricity Smart Metering Equipment (ESME), Gas Smart Metering Equipment (GSME), In Home Display (IHD), Pre-Payment Meter Interface Device (PPMID), and Other identifying each Device Model (on the x-axis) and the volume of meters and of each firmware model (on the y-axis).
2. A single Device Model bar graph giving a breakdown of each SEC Party's estate firmware version, highlighting the report recipient and the industry average

The DCC will provide for each customer a CSV data file identifying all Devices on their estate with the following data fields:

- Device Identifier;
- Smart Metering System (SMS) Identifier;
- Device Type;
- Device Model;
- Firmware version;
- Communication Service Provider (CSP) Id;
- Energy Supplier Id;
- Distribution Network Operator (DNO) Id;
- MPxN;
- Postcode;
- Last Meter Read time/date;
- Last Alert time/date;
- Last Alert Code;
- Commissioned Status;
- Power Outage Alert Count in last month (including Polyphase Supply Interrupted Alerts);
- Prepayment flag;
- SMETS version;
- whether the Device expires on the Central Products List (CPL) within 30 days;

- Devices whose Security Certificates are due to expire; and
- Change of Supplier Start and End dates.

Note: The above request was captured at a DCC Workshop. The DCC believe that this data could run to many millions of rows and therefore suggest some form of exception reporting. The format of this report is therefore to be discussed with customers in the Working Group, however the PIA costs and duration will be based on the full dataset.

Requirement 2: The DCC shall provide reporting to its Users on the business processes defined in the Customer Analytics Reporting, which will include a view of the Users' performance against anonymised performance data for all Parties in the same User Role.

1. The DCC will report for each of the requirements noted in this section, identifying in separate graphs:
 - A monthly average benchmark of success or failure against other customers operating in the same User Role;
 - A monthly view of Round Trip Time or Alert delivery time, identifying customer best, worst, mean and median against those same metrics at an industry level for other customers operating in the same User Role;
 - A daily average view of success/failure and average Round Trip Time for that customer compared to industry average. Where relevant, performance will be broken down by meter type, Region and SMETS1/SMETS2, and 'Category 1 & 2' Incidents will be highlighted. The report will identify all failures by Reason Code alongside all additional signifiers to enable Users to diagnose common themes.
2. The DCC will provide a monthly CSV data file for each Service Reference Variant (SRV), identifying at an aggregated level all dimensions that Speed, Volume, Payload (SVP) report on:
 - Success/Failure;
 - Failure reason code;
 - Communications Hub Manufacturer;
 - Communications Hub Model;
 - Communications Hub Function;
 - Communications Hub Firmware;
 - Device Type;
 - Device Manufacturer;
 - Device Model;
 - Device Firmware Version;
 - Region; and
 - Round Trip Time.

Requirement 3: The DCC shall provide reporting on DCC and Device Alerts received by an Import Supplier, Export Supplier or Gas Supplier, which will consist of a total of all Alerts and individual reporting for each Alert, to the relevant Users.

Electricity Distributors will receive reporting on the following subset of Alerts:

- AD1 – Power Outage Alert;
- 8F35 – Supply Outage Restored;
- 8F36 – Supply Outage Restored - Outage $\geq$ 3 minutes;
- 8F58 – Supply interrupted on Phase 1;
- 8F59 – Supply interrupted on Phase 2;
- 8F5A – Supply interrupted on Phase 3;
- 8F37 – Supply Outage Restored on Phase 1;
- 8F38 – Supply Outage Restored on Phase 2 Restored - Outage $\geq$ 3 minutes;
- 8F39 – Supply Outage Restored on Phase 2 Restored;
- 8F3A – Supply Outage Restored on Phase 2 Restored - Outage $\geq$ 3 minutes;
- 8F3B – Supply Outage Restored on Phase 3 Restored;
- 8F3C – Supply Outage Restored on Phase 3 Restored - Outage $\geq$ 3 minutes;
- 8F0C – Clock not adjusted (adjustment greater than 10 seconds);
- 81C6 – Clock not adjusted (outside tolerance);
- N12 – Failure to deliver Command to Device;
- N13 – Failure to receive Response from Device;
- N53 – Command not delivered to ESME; and
- N55 – SMETS1 Service Provider (S1SP) Service Request Validation Failure

This reporting will provide the following views:

1. A daily average view of success/failure of Alert sending and average delivery time for that customer compared to industry average.
3. A monthly summary of success compared to industry average.
4. The DCC will provide a monthly CSV data file for each Alert type, identifying at an aggregated level all dimensions that SVP report on:
 - Success/Failure
 - Failure reason code
 - Comms Hub Manufacturer
 - Comms Hub Model
 - Comms Hub Function
 - Comms Hub Firmware
 - Device Type

- Device Manufacturer
- Device Model,
- Device Firmware Version,
- Region,
- Round Trip Time

Reports for the Electricity Distribution role for the Alerts N13 'Failure to receive Response from Device' and N55 'S1SP Service Request Validation Failure' will receive an additional view identifying a breakdown of the Alerts split by Meter Make, Model, Firmware Version.

In addition, the following reports will be produced specifically for the Electricity Distribution role:

- a) Report comparing the daily monitoring of N16 'Device Identity Confirmation' Alerts with N42 'Security Credentials Updated on the Device' Alerts identifying volumes which have met a seven day Service Level Agreement (SLA) for receipt of the N42 following N16 and those that have failed this metric, sorted by Energy Supplier;
- b) Standardised Reporting identifying Power Outage Alerts with no Power Restoration Alerts:
 - i) AD1 with no 8F35
 - ii) AD1 with no 8F36
 - iii) 8F35 with no AD1
 - iv) 8F36 with no AD1

4 Description of Solution

Following workshops and consultations with Users, the DCC TOC has proposed three categories to be included in the Customer Analytics Reporting suite; inventory, business process, and Alert reporting. The solution must include the scope to add or amend metrics to the reporting suite in future, and how such changes will be costed.

4.1 The DCC Technical Operations Centre

The DCC Technical Operations Centre (TOC) is a 24x7x365 capability with an in-depth technical understanding of the DCC systems, process and technology to ensure the DCC service “lights stay on”. This is done by assuring, controlling, monitoring and informing the DCC network.

The TOC is staffed by dedicated DCC sourced system experts and a core network monitoring team and is located at the DCC Brabazon site. The TOC staff are technical experts that understand the DCC systems, processes and technology in sufficient level of detail to be able to provide a 3rd level support capability.

The TOC solution has four key objectives:

1. Service Visualisation of data sources in near real time to provide an adaptable and configurable Operations Management dashboard.
2. Operations Analytics and/ or intelligence allowing highly accurate monitoring of key DCC KPI's across all data sources, identify anomalies and generate intelligent insights through correlation/ trend analysis – and other statistical analysis models - of data sources to automate root cause identification and provide other useful insights to facilitate DCC in their operational objectives.
3. Capability for proactive alerting of operational metrics, using appropriate algorithms/ logic, that can be triggered through use of configurable thresholds and detection of anomalous behaviour, allowing DCC to pre-emptively address possible incidents.
4. Summary of key infrastructure availability across DCC supply base to provide a high-level view of service availability, subject to appropriate security constraints.

The DCC TOC will be responsible for the design, development, implementation and BAU maintenance of the solution for this Modification.

4.2 Solution Constraints and Changes

DCC have reviewed and concluded that the requirements can be met in full and delivered using existing data available in the TOC and subsequently working within the constraints of the current solution should involve no commercial change to the DCC Solution, although there will be a direct impact on support and maintenance.

Should requirements evolve as part of change to the initial requirements subsequent to this PIA, then DCC will need to evaluate principally based upon if it can be delivered from existing data available in the TOC. If further "external" data is identified, it will be separated out with individual DCC Change Requests sent to the relevant Service Providers. These data requests will be considered as PIAs in this document, with a ROM cost assessed for each new requirement. If the Working Group decides it wants to go ahead with this external data and associated development, it will be sent out for a FIA. It should be noted that these additional external data requests will also require contractual negotiations between the DCC

and the impacted Service Providers, which is expected to take at least six months to complete.

4.2.1 Delivery Mechanism

It is assumed that in addition to where specified (e.g. Requirement 1 CSV file) DCC will distribute PDF outputs (in accordance with SECMP0122 delivery). If requested by the Working Group, DCC could make assessments for a secure self-service portal in the FIA.

4.3 Working Methodology

During the requirement gathering and refinement, principally as part of the SECMP0122 process which has driven this Modification requirement, the DCC and SECAS hosted workshops with the Working Group. These workshops aimed to validate the proposals in the Operational Metrics Review (OMR) in terms of the viability of implementing the recommendations, to refine the requirements further, and to enable fast delivery of new requirements and improvements.

It is proposed that the reporting will be delivered by the DCC TOC via an iterative delivery mechanism, whereby a Minimum Viable Product (MVP) will be available in a first prototype release in the Implementation phase and following consultation with the Working Group, further functionality can be delivered in a fast and frequent continuous delivery mechanism until the final product is complete, using the same methodology as SECMP0122.

4.4 Data Delivery, Testing, and User Acceptance

The development and testing will not follow the PIT, SIT, and UIT pattern associated with a "conventional" SEC Release, and will not require the testing services of the System Integrator or CSPs.

For any subsequent changes to requirements, external data provided by the Service Providers will require a limited technical change to reflect the provision of the data to the DCC. In some cases, mostly relating to the SMETS1 Service Providers (S1SPs), there is no current data provision, so a data transfer mechanism will have to be developed.

5 Impact on Systems, Processes and People

As defined the change included in this document is confined to data already within the DCC TOC, with no expected changes impacting SMETS1 or SMETS2 Service Providers.

5.1 DCC Technical Operations Centre Development and Testing

The full range of activities required to implement these requirements including design, development, testing, and implementation would be performed by DCC in-house contractors and permanent staff. These activities include:

- Deliver Data Model algorithms, build report, test, document, update database, update interfaces and document solution.
- Add additional monitoring to support live 'spike' monitoring

The DCC TOC costs for the solution include requirements which only require existing data held in the TOC. No Service Provider contract changes are required.

5.2 Technical Specifications

No change to DUIS, GBCS, or any other Technical Specification is expected.

5.3 Self Service Interface

No Impact has been noted.

5.4 Infrastructure Impact

To meets the requirements within this modification, no additional infrastructure (database, systems, cloud capability or capacity) is envisaged. Any additional data-marts, data-tables and data warehouse solution costs will be facilitated by economies of scale, and will be absorbed into TOC running costs.

It should be noted that the solution as proposed should not add noticeable traffic or processing to the Smart Metering System or network.

5.5 Application Support

There will be a slight increase in the Full Time Employees (FTEs) required to support, maintain, and deliver the reporting on a monthly basis, but this will be absorbed into the Business As Usual (BAU) function. It should be noted that these additional, small incremental increases in workload will eventually lead to headcount increases. These services will include:

DCC TOC Proactive Monitoring with TOC 24/7 staff	24/7 monitoring – based on a 2 on /duty 2 off duty basis. These will be used to help with the real time annotation of reports – essentially these staff reduce the FTEs needed to turn around such a large report.
DCC TOC Reporting Staff	Required to support and maintain the TOC system as Business as Usual, building DCC data throughout month and packaging report in 10 day production cycle

DCC TOC Third Line Support	For Reports requirements: Support and query answering, plus maintenance and optimisation
Operations Support	Covers both Service and Incident Management and is centred on the requirement to provide Commentary. Investigation will be required to identify whether the performance deterioration is as a result of issues with system, Comms Hubs, Meters, Orchestration or areas entirely outside DCC visibility (actions taken by SEC Parties e.g. Staff being taken off work due to training, system issues with customers etc.)

5.6 Service Impact

Impacts to DCC Service Design, Service Management and other Application Support functions are likely, and it is expected that further TOC staffing will be required to support the changes in this Modification. These costs will be determined as part of the Full Impact Assessment, and will reflect the complexity and other properties of the solution.

6 Implementation Timescales and Approach

A key factor in planning and delivering this Modification's implementation and release is that the changes are neither part of the Smart Metering System, nor do they impact any Technical Specifications, such that they can be implemented separate from the now-standard SEC Release dates. It should be noted that Requirement 4 may require some changes to Service Provider's internal systems, and this may have an impact on full system functionality becoming available, which will be assessed in the FIA.

6.1 Testing and Acceptance

It is assumed that the change will be implemented and tested as a separate release, and will include testing iteratively during development. The development and testing will not require the testing services of the System Integrator or CSP.

It is likely that selected Service Users would be engaged in the design, development, and test phases for this Modification. A full analysis of the testing methodology will be defined as part of the Full Impact Assessment.

7 Costs and Charges

The table below details the cost of delivering the changes and Services required to implement this Modification Proposal. The Rough Order of Magnitude cost (ROM) shown below describes indicative costs to implement the functional requirements as assumed above. The price is not an offer open to acceptance. It should be noted that the change has not been subject to the same level of analysis that would be performed as part of a Full Impact Assessment and as such there may be elements missing from the solution or the solution may be subject to a material change. As a result the final price may result in a variation.

7.1 Design, Build, and Testing Cost Impact

The table below details the cost of delivering the changes and Services required to implement this Modification. The scope of supply under this PIA includes design, development (build), testing within a selected TOC environment. Activities out of scope of this cost include Application Support and infrastructure improvements.

£	Design, Build and Test
Operational Metrics	£130,000 with a tolerance of +/- 20%

Based on the existing requirements, the fixed price cost for a Full impact Assessment is £30,000 and would be expected to be completed in 30 days.

Appendix A: Glossary

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

Acronym	Definition
BAU, BaU	Business As Usual
CPL	Central Products List
CSP	Communication Service Provider
CSV	Comma Separated Variable
DCC	Data Communications Company
DNO	Distribution Network Operator
DSP	Data Service Provider
DUIS	DCC User Interface Specification
ESME	Electricity Smart Metering Equipment
FIA	Full Impact Assessment
FTE	Full Time Employees
GBCS	Great Britain Companion Specification
GSME	Gas Smart Metering Equipment
I&C	Installation and Configuration
KPI	Key Performance Indicators
MVP	Minimum Viable Product
OMR	Operational Metrics Review
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
PMR	Performance Measurement Report
PPMID	Payment Meter Interface Device
ROM	Rough Order of Magnitude (cost)
SVP	Speed, Volume, Payload, a measure of performance of SRVs
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SLA	Service Level Agreement
SMETS	Smart Metering Equipment Technical Specification
SMS	Smart Metering System
SRV	Service Request Variant
S1SP	SMETS1 Service Provider
TOC	Technical Operations Centre
UIT	User Integration Testing