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Action:	For Decision

LSC for the IOC Aclara entries onto the EPCL for SMETS1 - SEC Panel Sub-Committee Review

1. Purpose

This paper updates the Panel on the Live Services Criteria (LSC) for additional entries onto the Eligible Products Combination List (EPCL) for the Initial Operating Capability (IOC) for Aclara Devices. The LSC paper and supporting evidence were issued by the DCC on 31 March 2020. The reviews undertaken by the SEC Panel Sub-Committees: Testing Advisory Group (TAG) and Operations Group (OPSG) are summarised in this paper. The views of the Security Sub-Committee (SSC) are provided as Confidential Appendix C to this paper.

The intent is that these views will facilitate the SEC Panel recommendation to BEIS.

2. Sub-Committee Views on DCC Statement of Readiness

The OPSG met on 7 April 2020 to consider test completion, with the TAG meeting on 8 April 2020 to consider the Live Services Criteria, the DCC letter to BEIS and supporting documentation (attached as Appendix A for information).

IOC Aclara Devices were originally planned to be added to the EPCL during July 2019. However due to an issue that impacted the security of Devices, the decision was taken not to add these Devices to the EPCL at that time. IOC Aclara Devices have subsequently had their firmware remediated to rectify the security defect.

The Sub-committees recommend that the Panel agrees to recommend to BEIS that the EPCL is updated once the conditions set out in in relation to LSCs 4 and 5 have been met. The table below provides a summary of the views of the Sub-Committees set against the LSC and statements from the DCC.

2.1 Scope of review

The Sub-Committees note that the DCC is requesting approval to migrate 355 dormant and 53,422 active IOC Aclara installations.

Live Service Criteria	Extract of DCC Statement (full statement in Appendix A, Annex D)	Sub-Committee Views	RAG Status
1. SMETS1 Migration Services ready, including early migration support for relevant Device Model Combinations	<p>DCC is ready to carry out migration of the DMCs that that we are proposing to add to the EPCL.</p> <p>The Migration Control Centre (MCC) has been operational since April 2019 and has been migrating dormant and active devices since 6 August 2019.</p> <p>As set out in previous LSC submissions, the MCC team is staffed to migrate at full volume. The experience that has been obtained through the migration of dormant and active devices to date has allowed the team to reach a sound level of maturity.</p> <p>On 21 February 2020, DCC submitted the LSC which requested approval of the first Morrisons Data Services (MDS) DMC onto the EPCL. BEIS approved this DMC on 13 March 2020. Since this submission (21st February 2020), DCC has successfully managed and controlled the migration of 27,772 installations (55,544 meters), across 4 Device Model Combinations (DMCs).</p> <p>On 19 March 2020, DCC successfully migrated 17,903 installations (35,806 meters), with a Right First Time (RFT) of 97% and no unexpected issues encountered. A known file sequencing error occurred affecting 509 installations, all of which were re-tried the following day, 503 of which were migrated successfully and 6 were successfully rolled-back. This was the MCC's biggest single migration day to date.</p> <p>To date, DCC has migrated 62,693 installations (125,386 meters), across 4 DMCs with an average RFT of 97.4% and a failure rate of less than 0.1%.</p>	The OPSG accepts the statement of readiness provided by the DCC.	Green

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2. Service Operations capability ready	DCC's core Service Operations Capabilities are in place and ready to support the migration and operation of the DMCs at Annex A. This includes dedicated SMETS1 resources across the MCC, Early Life Support (ELS) and co-located support functions. Please refer to Annex J, the Operation Acceptance Summary report which was done for these DMCs. As set out in LSC 5, DCC obtained a conditional TAB approval. The content of this LSC is contingent on the conditional TAB approval.	The OPSG accepts the statement of readiness provided by the DCC	Green
3. SMETS1 Service and Migration can operate at the requisite volumes to support migration and operation of the relevant DMC and operating capability, in parallel with all SMETS2 activity	The migration forecasts for these additional DMCs are such that we are still well within the thresholds tested and articulated in the first Live Services Criteria submission for go-live of the overall service. DCC has resourced its operational teams appropriately to support both SMETS1 and SMETS2 activities as set out in our previous LSC submissions. DCC has not experienced any adverse impact to the performance of its SMETS2 service as result of the successful SMETS1 migrations to date. The introduction of the Aclara does not materially change the performance of the DCC Systems established under IOC LSC as testing was done on the basis of IOC and MOC MDS.	The OPSG accepts the statement of readiness provided by the DCC subject to the provisions of Residual Risk 5 below.	Green
4. Regression Testing has completed successfully for SMETS1 and SMETS2 Live Systems	There is no code release associated with the addition of these entries on to the EPCL, and therefore there is no risk to impacting live service as a result. MDS Test Completion included some successful regression testing which was carried out in parallel to the Aclara testing.	The TAG accepts DCC's statement that there is no new code release associated with this phase of testing, so the regression testing of earlier IOC DMCs remains valid. Regression testing was conducted for IOC Itron and Honeywell Elster using Device sets which have been migrated	Amber

Live Service Criteria	Extract of DCC Statement (full statement in Appendix A, Annex D)	Sub-Committee Views	RAG Status
		<p>during previous migration testing phases with a 100% pass-rate.</p> <p>During migration testing a Testing Issue was identified (110031¹) and initially assigned a Severity 2 rating, which was downgraded to Severity 3 following analysis of the root cause and impact, which the TAG agreed. A fix is expected to be implemented as part of the May Maintenance release. This fix will change the code base, resulting in a requirement to carry out further regression testing using DCC's standard regression test pack once the fix has been implemented.</p> <p>Because of the need to carry out further regression testing, the TAG recommends that IOC Aclara Devices should only be added to the EPCL once BEIS has received satisfactory assurance from the DCC that further regression testing has been successfully completed.</p>	
5. Testing of SMETS1 Services for the relevant DMCs has completed successfully	<p>DCC has successfully completed testing for the proposed EPCL entries in line with SVTAD and MTAD. The testing was conditionally approved by the DCC's Test Assurance Board on 31 March 2020. DCC will be presenting the test completion report to TAG on 8 April 2020.</p> <p>As part of the TAB approval, it was noted that there was an open Severity 2 defect. Despite this defect, TAB gave an approval, based on the consideration that DCC would not add the proposed DMCs onto the EPCL until a root cause analysis of the defect was obtained and was found to be acceptable, and a workaround is in place. Such a workaround could downgrade the severity of this defect to Severity 3. This workaround is due to be in place at the beginning of May</p>	<p>Migration testing</p> <p>97% of tests completed successfully, with the remaining tests failing due to two Testing Issues (110029 and 110031²). TAG agreed that both Testing Issues should be rated as Severity 3 and fall within agreed tolerances.</p> <p>Two complete cycles of EOC must be completed to demonstrate reliability and repeatability. The first EOC cycle achieved a 96% pass rate, with EOC 2 achieving 99%.</p> <p>The discrepancy between the two EOC cycles is due to one of the Testing Issues identified during functional testing (110029) which relates to a known, intermittent production defect. It does not</p>	Amber

¹ Details of outstanding Testing Issues are provided section 4.3 of this document.

Live Service Criteria	Extract of DCC Statement (full statement in Appendix A, Annex D)	Sub-Committee Views	RAG Status
	as part of a planned maintenance release.	<p>affect all Devices and no affected Devices were used during EOC 2, which is why a different result was achieved. Testing Issue 110029 has been rated as Severity 3 and falls within agreed tolerances.</p> <p>As set out in response to LSC 4, the TAG recommends that IOC Aclara Devices should only be added to the EPCL once BEIS has received satisfactory assurance from the DCC that further regression testing has been successfully completed.</p> <p>Service Request Variant Testing (SRVT)</p> <p>100% of functional tests executed and passed.</p> <p>100% of EOC tests were executed and passed.</p>	
6. Pre-existing services remain stable for SMETS2 and SMETS1 prior to operating capabilities ³	<p>Whilst January saw the highest number of Incidents to date, the stability of the network and performance of our suppliers since has significantly improved.</p> <p>In February there were no SMETS2 incidents and three SMETS1 incidents, all relating to the speed of migrations as opposed to failures.</p> <p>DCC has continued to action its Enterprise Stability Plan, which has resulted in further improvements being achieved throughout March. During March there has been one SMETS2 incident and one SMETS1 incident.</p> <p>DCC continues to monitor its systems and services through its Technical Operations Centre (TOC) to ensure that there are no extant issues which might affect DCC's ability to migrate the devices. DCC has not seen any evidence that services are being</p>	<p>The OPSG noted the improvements in Incident volumes since January.</p> <p>An OPSG member highlighted issues with the DCC generating certain SMETS1 reports. These have now been resolved.</p> <p>The OPSG considered the potential impact of the COVID-19 outbreak, including a reduction in the number of SMETS2 installations being completed.</p> <p>The OPSG accepts the statement of readiness provided by the DCC subject to the provisions of Residual Risk 5 below.</p>	Green

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	<p>negatively impacted by SMETS1 migrations.</p> <p>Both DCC and its Suppliers continue to report a “Green” status across all functional areas despite the COVID-19 pandemic. DCC therefore considers its network stable and capable of supporting the increased SMETS1 migration volumes associated with the new DMCs.</p>		
7. Any lessons learnt from prior operating capabilities are incorporated into live process	Having successfully migrated dormant devices into the DCC System, DCC has learnt valuable lessons that it will apply when migrating the proposed EPCL entries.	The OPSG accepts the statement of readiness provided by the DCC.	Green
8. No detrimental impact to consumers experience expected	<p>Based on the experience of live migrations and early life support to date, DCC does not consider that there is a material risk of negative impact to consumers’ experience.</p> <p>To date, DCC has had no reports of any issues affecting the operation of successfully migrated installations. Consequently, there is no further evidence to add from the LSC that was provided in previous LSC documents.</p> <p>There is a risk that devices with an Auxiliary load circuit could be adversely impacted post migration by changing the tariff on the device. A change to mitigate this issue will be in place in May and DCC is working with energy suppliers to mitigate this risk.</p>	<p>The OPSG accepts the statement of readiness provided by the DCC.</p> <p>The OPSG noted Residual Risk 3 regarding Auxiliary Load and requested that the DCC fully considers any impact on consumers when planning the pacing strategy for migrating meters with Auxiliary Load functionality.</p>	Green
9. Assurance of required Business Continuity/Disaster Recovery	<p>DCC is confident that its Systems are sufficiently resilient.</p> <p>DCC has worked with the SEC Operations Group to alleviate concerns over the current BCDR testing and has provided a calendar of the year’s BCDR testing programme.</p> <p>Coronavirus Operational Update</p>	<p>The OPSG noted that the DCC is currently operating Business Continuity plans due to COVID-19.</p> <p>The OPSG acknowledged the postponement of Disaster Recovery testing and the difficulty in re-planning under the current the circumstances. The OPSG requested further information on implications of the postponement</p>	Amber

Live Service Criteria	Extract of DCC Statement (full statement in Appendix A, Annex D)	Sub-Committee Views	RAG Status
	<p>DCC has a Business Continuity Plan that continues to mature and has established a Pandemic Response Team to manage the ongoing risks and impact of the pandemic event.</p> <p>DCC is following an approach which prioritises critical teams in order to ensure the delivery of essential production services. This is in line with recommendations from Government, Public Health England and Capita guidance.</p> <p>DCC is closely monitoring the provision of its essential services and the status of its critical staff over the crisis period. At present, all essential services are stable and critical teams have a “green” status.</p> <p>Whilst the Migration Control Centre and Early Life Support teams are not designated critical teams, these functions have continued to operate effectively during the crisis period with staff working remotely. Measures have been put in place via the line management of these teams to monitor wellbeing and communicate with staff members. At present, DCC has not seen any impact to the performance of these teams as a result of the pandemic challenges.</p> <p>Details of DCC’s Pandemic Risk Planning was shared with SEC Ops Group on 24 March 2020.</p>	<p>and for revised plans when they become available, but no deadline has been set.</p> <p>The OPSG accepts the statement of readiness provided by the DCC but assessed this LSC as Amber.</p>	
10. Completion of relevant security testing and approval of security architecture	<p>There is no change to the current Security Arrangements as set out in the previous LSC which requested the addition devices onto the EPCL. As set out in LSC 5, DCC obtained a conditional TAB approval. The content of this particular LSC is contingent on the conditional TAB approval.</p> <p>The Aclara devices were originally in scope to be added to the EPCL at go-live in July 2019. However due to an issue that impacted the security of the</p>	<p>A separate letter from the Chair of the SSC has been provided as Confidential Appendix C.</p>	

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Live Service Criteria	Extract of DCC Statement (full statement in Appendix A, Annex D)	Sub-Committee Views	RAG Status
	<p>devices, the decision was taken not to add these devices to the EPCL. The devices have subsequently had their firmware upgraded to rectify the security issue and have now been subject to a new suite of tests in SIT, which included a firmware test of the original security vulnerability which the firmware fixed. DCC have undertaken no additional security testing of the Aclara devices beyond the standard IOC Depth and Breadth documents.</p> <p>The SEC Panel Security Sub-Committee (SSC) have indicated that as volumes of SMETS1 migrated installations increase, in the absence of negative functional security testing there is an associated security risk to the DCC Modified Total Systems.</p> <p>As a result of this concern, DCC has been asked by the SSC to conduct limited negative functional security testing of SMETS1 Smart Metering Systems (SMS) to mitigate any risks of an adverse effect on the Modified DCC Total System due to a security vulnerability. In order to mitigate this risk, DCC is currently establishing a process to penetration test the output from the HAN device which DCC anticipates starting in June 2020.</p>		

3. Residual Risks

The OPSG and TAG noted that the DCC has set out five residual risks. The DCC has provided mitigations for the risks. The table below provides a view from the OPSG and TAG.

Residual Risk	Extract of DCC Proposed Approach (further detail in Appendix A, Annex E)	TAG & OPSG Views
1 Lack of end to end capacity testing	DCC proposes that this risk is accepted. DCC does not currently have the capability to carry out complete end-to-end capacity testing and have taken the same approach to capacity testing as with previous releases - conducting a design review and testing individual components. DCC will monitor the performance of the live service via the TOC, ensuring any issues are identified. Live proving has not indicated that performance	This risk is unchanged from previous SMETS1 LSCs. The OPSG and the TAG accept the DCC assessment.

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Residual Risk	Extract of DCC Proposed Approach (further detail in Appendix A, Annex E)	TAG & OPSG Views
	issues are likely given the volume of migrations for this release.	
2 Migration of Active meters could impact consumers	<p>There is a risk that the failure of a migration could impact consumers. Any active migrations which fail and require a corrective fix forward from DCC may cause a temporary interruption of smart functionality for the consumer. Where the migration requires a rollback, the impact would be minimal as rollback is a quick process.</p> <p>Live proving identified a number of issues that have now been fixed. The fixes were not device specific and therefore DCC does not believe there is evidence that the device specific parts of the solution have caused these problems. For this reason, DCC has assessed the likelihood to be low, however DCC is proposing to work with customers to agree a cautious pacing strategy for new types of migration enabled in this release. This approach further mitigates the risk of widespread impact to consumers or DCC's customers.</p>	The OPSG accepted the DCC's mitigation.
3 Auxiliary Load capability	<p>There is a risk that devices with an Auxiliary load circuit could be adversely impacted post migration by changing the tariff on the device. DCC are aware that a number of meters in this cohort have Auxiliary Load circuits (approximately 15%).</p> <p>As the plan to deliver Core Release 1.1 is already underway, DCC proposes that this risk is accepted.</p>	<p>A Large Supplier Party OPSG member expressed concern that consumers could be impacted by this issue. However, this Party confirmed that it is working closely with the DCC to identify consumers with Auxiliary Load circuits to ensure that they are excluded from the migrations.</p> <p>The DCC stated that this issue will be resolved by SMETS1 Uplift 1.1 release, currently scheduled for deployment 6 May 2020.</p> <p>OPSG agreed that this risk could be accepted in the short term subject to the exclusion action set out above, pacing strategy and careful monitoring by the DCC.</p> <p>OPSG actioned the DCC with bringing this issue back to OPSG should the</p>

Residual Risk	Extract of DCC Proposed Approach (further detail in Appendix A, Annex E)	TAG & OPSG Views
		SMETS1 Uplift 1.1 release not be implemented as planned.
4 HAN Security Testing	<p>There is a risk that some security controls may not work as expected as DCC has not been provided with evidence related to the security testing of Devices.</p> <p>DCC propose that this risk is accepted for these EPCL entries as volumes are still comparatively low and no new vulnerabilities are being introduced. It should be noted that this risk is being closely monitored by SSC and DCC are actively pursuing the completion of additional Device testing as a mitigation to this risk.</p>	The SSC response is provided in Confidential Appendix C.
5 Impact of Alert Storms in SMETS2	<p>DCC has seen higher than expected alert volumes on the SMETS2 service. There is a risk that a similar situation occurs for SMETS1.</p> <p>DCC are pursuing a number of changes to reduce the number of alerts and protect the S1SP from excessive alerts. DCC continue to monitor alert volumes on SMETS1 closely and are actively pursuing a number of changes to the SMETS1 solution to reduce the number of alerts and protect the S1SP from alert storms.</p>	<p>In the OPSG LSC review meeting, DCC stated that it has observed an average of 2.3 Alerts per day per installation with a total of 180,000 Alerts per day. This is not considered significant when compared with the 50 million per day currently being experienced with SMETS2 Devices.</p> <p>The DCC is closely monitoring the level of Alerts and this forms part of the daily 'Go/No Go' decision taken prior to starting any migrations each day.</p> <p>The OPSG accepted the DCC assessment of this risk, along with the proposed mitigation.</p>

4. Further Observations from the Sub-Committees

4.1 General

The OPSG noted the current exceptional situation presented by COVID-19 and the implications for the assessment of the service against the relevant LSCs. The OPSG highlighted that due to the pandemic's potential impact on installation rates, DCC Systems are not being exposed to the levels of usage normally expected. The DCC is currently operating under its Business Continuity protocol, with further information on mitigations and assurance under LSC 9.

The OPSG also commented that it was not yet possible for premises with split supply points to be migrated. The DCC confirmed that this will be resolved in SMETS1 Core Release 1.1, currently expected to be implemented on 6 May 2020.

4.2 Operational Impact of deficiencies in the Production Service

No deficiencies in the Production Service noted in relation to this release.

4.3 Outstanding Testing Issues

Two outstanding Severity 3 Testing Issues were identified during the TAG's review of test completion and an existing Severity 2 Testing Issue was also considered.

The severity 2 issue would normally cause testing to fail. However, it only affects mixed installations and the DCC is not currently requesting approval to add mixed DMCs to the EPCL. This mitigation was deemed to be effective and was accepted by the TAG.

The two Severity 3 defects fall within the agreed tolerances and in isolation do not constitute a valid reason to prevent the testing set out in the testing Depth and Breadth document from completing successfully. However, further regression testing will be required in relation to one of the Severity 3 Testing issues (110031) before IOC Aclara Devices can be added to the EPCL.

Details of these three defects is provided in the table below:

Issue	Description	Recommendation
200347	This Severity 2 defect was carried over from earlier IOC testing. The impact is that it is not possible to identify the energy supplier responsible for dormant DMCs within a mixed installation.	The impact is fully mitigated for this request to add dormant and active DMCs to the EPCL, but this defect must be fixed prior to adding mixed installations to the EPCL This issue should not prevent active and dormant IOC Aclara DMCs from being added to the EPCL.
110029	This severity 3 defect relates to a late acknowledgement being received from the S1SP and can affect any Service Request. Service Requests will complete successfully, but the log reports an 'in progress' status when it should report 'complete'.	This is within agreed tolerances. This issue should not prevent IOC Aclara DMCs from being added to the EPCL.
110031	A rotation of the Management Key is required within 7 days of a Device being Migrated. This severity 3 defect results in the first attempt at key rotation failing to provide confirmation of successful key rotation for all Aclara Devices, although in every case the key was rotated. When a 2nd key rotation command is issued at least five minutes after the first attempt a successful response is received. DCC has identified a fix which will automate multiple key rotation commands which is due to be	This is within agreed tolerances. However, IOC Aclara DMCs should only be added to the EPCL after the DCC has provided BEIS with satisfactory assurance that further regression testing to ensure that other DMCs are not affected has completed successfully.

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	implemented as part of the April Planned Maintenance release.	
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5. Views Relating to the Entry and Exit Criteria of the Testing

The TAG reviewed all the test completion reports and considered that the entry and exit criteria had been met.

6. Recommendations

The Panel is requested to:

- **NOTE** the views of the TAG and OPSG contained in this paper and the SSC in Confidential Appendix C;
- **AGREE** the content of the letter from the Panel to BEIS for the 'Live Services Criteria for the IOC Aclara entries onto the Eligible Products Combination List (EPCL) for SMETS1' (Appendix B); and
- **AGREE** to recommend to BEIS that the EPCL is updated subject to the condition to carry out further regression testing set out in response to outstanding Testing Issue 110031.

Robin Healey; Joey Manners

SECAS Team

9 April 2020

Attachments:

- **Appendix A** – DCC Live Service Criteria for IOC Aclara Devices and supporting evidence (**AMBER**)
- **Appendix B** – Draft letter to BEIS - Panel determination (**AMBER**)
- **Appendix C** – SSC Letter to SEC Panel Chair (**AMBER**)