Data Communications Company

Consultation response

System Capacity Testing Approach Document for SMETS1 Services v1.0

Date: 27 June 2019

Classification: DCC Public

1 Introduction and Context

The SEC Variation Testing Approach Document for SMETS1 Services ("SMETS1 SVTAD") was designated by the Secretary of Station on 18 September 2018 and included in the Smart Energy Code (SEC) from version 5.22 onwards as Appendix AK. Under the SMETS1 SVTAD, DCC is required to develop and consult on various approach documents including the System Capacity Testing Approach Document for SMETS1 Services ('SCTAD').

On Monday 13 May 2019, DCC issued a consultation on the SCTAD and this document provides DCC's conclusion to that consultation.

2 Background

The SCTAD is required under the SMETS1 SVTAD to set out any supplementary rights and obligations in relation to System Capacity Testing. The purpose of System Capacity Testing is to demonstrate that the operational performance of the Modified DCC Total System is not adversely affected by the introduction of SMETS1 Services, and that the SMETS1 Services will operate at the requisite performance levels.

3 Regulatory Requirements

The SCTAD is produced pursuant to Clause 3.1, Clause 3.2 and Clause 3.3 of the SMETS1 SVTAD and this section details the regulatory requirements for its production.

Ref	Extract from SEC
SVTAD	3.1 The Testing Approach Documents shall be developed by the DCC. In developing a Testing Approach Document, the DCC shall consult with the Testing Advisory Group of the Panel ("TAG"), Parties and other relevant stakeholders prior to the submission of the document to the Secretary of State. 3.2 The DCC shall submit each draft Testing Approach Document to the Secretary of State, indicating: (a) why the DCC considers the draft to be fit for purpose; (b) copies of the consultation responses received; and (c) any areas of disagreement that arose during the consultation process and that have not been resolved. 3.3 The DCC shall comply with any direction given by the Secretary of State to re-consider, re-consult, and/or re-submit the draft document.

4 Consultation

4.1 Consultation

On Monday 13 May 2019, DCC published the consultation document titled SMETS1 SCTAD Consultation on the DCC Website and DCC's Service Desk also emailed stakeholders to notify them of the publication.

Stakeholders were invited to respond by 17:00 on Friday 31 May 2019 in a template format that was attached to the consultation.

During the consultation period DCC held a stakeholder briefing session via teleconference on Thursday 23 May 2019 to enable DCC to provide a detailed overview of the SCTAD. The session was attended by 30 stakeholders.

4.2 Consultation Questions

The consultation asked 3 questions.

Q1.	Do you support the overall approach and scope of the System Capacity Testing Approach Document for SMETS1? Please provide a rationale for your views.
Q2	Do you have any other comments on the draft SCTAD? Please provide details and any rationale.
Q3	Do agree with the proposed approval date by BEIS for the SCTAD of 21 June 2019 (or, if necessary, as soon as reasonably practicable within one month thereafter)? Please provide a rationale for your views.

4.3 Respondents

The consultation closed on Friday 31 May 2019. In total, 9 organisations responded to the consultation. Respondent groups included suppliers, distribution networks and a trade organisation. DCC has analysed the comments provided by each respondent. This document constitutes a summary of the detailed comments provided by those respondents and DCC's responses and conclusions.

5 Analysis of Responses

In relation to the 3 questions asked a number of respondents highlighted similar matters in response to questions 1 and 2. On this basis, the DCC has classified the responses into topic area. The responses to question 3 are considered separately.

5.1 Approach and scope of the SCTAD and wider comments

All 9 respondents raised concerns about the approach and scope of the System Capacity Testing and reiterated these in their response to question 2. The summary of these responses for questions 1 and 2 and DCC's response are set out in the topic areas below.

5.1.1 Scope and end-to-end System Capacity Testing

One of the main concerns for the majority of respondents was that there was no end-to-end system capacity performance testing proposed by DCC and instead components comprising DCC's SMETS1 system were being tested in isolation. Respondents questioned how, if there was no end-to-end testing, DCC could provide assurance on the operational performance of the Modified DCC Total System and be confident that there would be no degradation of the overall service once SMETS1 Services were introduced.

The second main concern of many respondents was that some components and interfaces of the Modified DCC Total System were out of scope for System Capacity Testing. These included:

- **Interfaces and DUIS gateways**; Respondents highlighted that the effective and efficient operation of interfaces will be critical to the successful enrolment of SMETS1 assets;
- **SMKI**: Respondents asked for clarification on the capability and performance of the SMKI system;
- **SMETS1 CSP**: Respondents were concerned about what assurance would be sought from the SMETS1 CSP and whether they can manage the expected capacity. It was suggested that these assurance statements should be part of the SCTAD;
- **DCC-E (Reporting systems)**: Respondents highlighted that reporting is an integral part of DCC's and Suppliers operations and delayed receipt of reports would materially affect the service received by consumers and potentially the reports to Ofgem;
- **Migration Report Regime (MRR)**: Respondents highlighted that MRR reports are a critical component for DCC Users, and there is a risk to users if this should fail, particularly as volumes scale.
- **SSI/Remedy**: Respondents noted the improvements to the SSI but asked for clarification on the timescales for the improvement project;
- **Business Continuity and Disaster Recovery (BCDR)**: Respondents raised a concern about potential disaster recovery capacity issues. For example, bringing separate services back on line after a major outage and recovery times;
- **Threshold Anomaly Detection Procedures**: Respondents commented that this should be included in scope as it was likely that there will be spikes in events, alerts and service requests throughout the migration activity; and
- **Migration Control Centre**: One respondent felt that this should be within scope to test whether it was robust and had to capacity to sustain the required services.

Respondents noted that some of these systems were being tested under different work programmes but requested that DCC provided details of this work.

Respondents expressed concern that it was not clear what the overall risks were of isolated components being tested and excluding some components and interfaces from the scope. Respondents felt that the risks should be clearly articulated in the SCTAD or otherwise as part the consultation.

One respondent commented that there did not appear to be any allowance for DCC people and process testing, such as service management, defect and triage management to ensure current levels will not be impacted.

One respondent noted the DCC plans to undertake Requesting Party System Capacity Testing alongside MOC and FOC but requested that this be included in the SCTAD.

A number of respondents sought further clarification on the System Capacity Testing of the components that were in scope. This included a request for clarification and further detail on the DCO testing including on the environment that testing will be undertaken. There was a challenge that there was lack of visibility of the Service Provider contracts and so stakeholders were not sighted on the requisite performance levels.

There was a question on the dynamically scaling solution and its ability to scale both up and down dependent on processing loads subject to design. Clarification was sought on how the success of this is determined and proven.

DCC Response

End-to-end testing and risk-based approach

DCC acknowledges the comments and concerns raised that there is no end-to-end system capacity performance testing and components were being tested in isolation. DCC has taken a risk-based approach to defining the scope of System Capacity Testing. This approach had been developed in line with our technical assessment as well as an economic assessment balanced against the risks.

Where DCC's technical assessment indicates that there is a low-risk that end-to-end performance related issues will arise within components of the DCC System, they have been excluded. However, where the risk is high, in the core components of the DSP (often referred to as 'the motorway'), which will process larger volumes of SMETS1 and SMETS2+ traffic, these components are included within the scope. Where the risk is lower, e.g. the interface between the SMETS2 CSPs and DSP – which will be unaffected by SMETS1 traffic, these are not included in the scope. It should also be noted that the DSP motorway has been fully tested at R2.0 for volume and performance with no degradation observed. Observation of the performance of the DSP in production has demonstrated its capability to operate many times its normal operational level without degradation being observed.

As part of the risk-based approach, we have considered economic factors, and this assessment forms part of the reasoning why DCC has chosen not to stand-up an end-to-end, integrated test environment which is scaled to support System Capacity Testing. Whilst DCC recognises the limitations of System Capacity Testing due to the decision not to provide an end-to-end test environment for this testing, we consider that this is the best approach, given the limited additional benefit gained from additional testing.

DCC have identified a residual risk in associated with SMETS1 code which will be made live in the DSP system for SMETS1 Devices. The impact of SMETS1 Devices is minimised in the design due to the minimisation of the touchpoints between SMETS1 and SMETS2+ message paths through the DSP. However, there is a risk that customers experience a degradation in performance due to the system not performing as expected. This may be caused by the fact that full end-to-end System Capacity Testing cannot be carried out due to lack of a full end-to-end capacity test

environment. DCC have conducted a design review and have focussed capacity testing on key components which are most likely to cause capacity related issues. DCC are adopting a gradual ramp up of migrations and have the ability to monitor system performance and throttle migrations accordingly. This, combined with the component level capacity testing, leads DCC to conclude that the risk to customers experiencing a degradation in performance can be managed effectively.

Exclusions from the scope of System Capacity Testing

DCC acknowledges the comments that its approach to System Capacity Testing excludes the capacity of interfaces that exist between components of DCC systems. However, DCC will be analysing the traffic as part of the operational assessment for the system.

DCC notes the comment on DUIS gateways being excluded from scope. DCC can clarify that the DUIS3 interface is in the scope and is part of DSP System Capacity Testing. Figure 1 and 3.4 (a) in the SCTAD has been amended to reflect this. Testing of the DSP has been done through the DUIS3 gateway by sending messages that have been routed from a Service User emulator. DCC have conducted a design review which indicates that DUIS1 and DUIS2 should not perform any differently to DUIS3. In Release 2.0, DCC capacity tested DUIS1 and DUIS2 and found no difference between them. During functional testing, where SMETS1 and SMETS2+ Devices have been tested alongside each other in the same environment, there has been no evidence that DUIS1 and DUIS2 code has been affected by the introduction of DUIS3. This leads us to conclude that there is a minimal risk that DUIS1 and DUIS2 will be less performant than DUIS3.

In terms of the activity of SMKI systems, as highlighted in the consultation, the impact of SMETS1 Devices is considerably less than for SMETS2+ Devices due to the difference in the security architecture of the SMETS1 and SMEST2+ Services. Since SMKI systems have already been scaled to perform satisfactorily for operation with 53 million smart meters on SMETS2+, the effect of SMETS1 would therefore be minimal on the SMKI Systems.

DCC notes the comments relating to the assurances from the SMETS1 CSP. DCC has received assurance that the SMETS1 CSP can manage expected capacity increases associated with SMETS1 Services. The required assurance will be established through the contractual arrangements with the CSP. These are separate to the SCTAD. It is our view that the SMETS1 traffic across their national mobile network following migration represents a very small proportional increase in the overall traffic carried by the mobile network. However, DCC recognises that there are components used for smart metering that are added to the mobile communications services and DCC has sought assurance on the capacity of those components. DCC has therefore included an obligation into the SCTAD to obtain assurance from the SMETS1 CSP that it can manage expected capacity increases associated with SMETS1 Services,

DCC has considered the responses in relation to the reporting elements that are excluded from scope. DCC remains of the view that report performance testing is not within scope of the System Capacity Testing activities. DCC acknowledges that there are some issues with the current reporting system and has development plans in place to ensure that the current operational reporting systems are able to operate at requisite performance levels. This development will be delivered through DCC's Reporting & Monitoring (R&M) Programme. However, DCC acknowledge the risk and DCC can confirm that all the forecasts used to measure the systems have included the introduction of SMETS1 Devices and DCC have in place monitoring to ensure there is no deterioration in service.

DCC notes the concerns on the Migration Report Regime (MRR) system. It remains DCC's view that given this is a stand-alone system and the processes for managing and producing reports are relatively simple, the risk of not including it in the scope of System Capacity Testing is low. DCC can confirm that the system has been designed to be scaled as necessary to provide larger migration reports. DCC will monitor performance as we ramp up and the cloud environment in which this system is based can be supplemented with additional resources if necessary.

DCC notes the comments from respondents regarding the testing of DCC's operational aspects. DCC can confirm that it will be testing all business process, such as Service Management, as part of the Business Acceptance Testing (BAT). Operational Acceptance Testing (OAT) will test the operational non-functional aspects of the Modified DCC Total System necessary to provide the DCC with assurance that the Modified DCC Total System meets the defined operational non-functional requirements for IOC, MOC and FOC. Reporting on BAT and OAT will be part of DCC's Live Service Criteria (LSC) submission. The LSC Submission will be submitted to BEIS, the SEC Panel and its sub-committees as part of the governance for go-Live.

With regards the Self-Service Interface and Remedy capabilities, DCC can clarify that these are being tested as part of the SSI improvement project which DCC is undertaking with oversight from the SEC Panel Operations Group Sub-Committee and includes scaling of the SSI portal to support future demands. Timescales for this work is shared with the SEC Panel Operations Group Sub-Committee. DCC's Service Management System has been tested as part of DCC's earlier operational readiness activity which has considered the increase in service management activity associated with SMETS1.

There is no testing included in this scope of System Capacity Testing that covers any BCDR validation. This will be covered as a part of an operational assessment and OAT testing. DCC acknowledge the importance of disaster recovery / BCDR systems and assurance. DCC carry out an end-to-end BCDR proving exercise annually to test failover / failback processes. The last BCDR activity was carried out in May 2019 which is required in advance of SMETS1 enrolment. It should be noted that with the exception of SMETS1 MOC, which will be a failover/failback test, DCC will undertake resilience testing of SMETS1 systems. This is because the solution is based on the premise that the service will not go down as the environment is active/active and load balanced across Capgemini dual datacentres, with either being able to take the full capacity. SMETS1 Resilience testing will be carried out in line with the Operational Acceptance Testing Approach Document.

There are no changes to Anomaly Detection that are related to capacity testing. It is assumed that Users will continue to submit their threshold submissions for combined SMETS1 and SMETS2+ SRVs in accordance with the SEC.

With regard to the Migration Control Centre (MCC), it is a manual process and therefore there is no system to test. The assurance that the MCC has the capacity to sustain the required services is part of the operational readiness activity and reported on as part of the LSC submission.

DCC notes the comment on the Requesting Party System Capacity Testing. The Requesting Party is a functionality that is within an existing production system which has been successfully supporting the current SMETS1 pre-migration Service offering. It is our view that the impact of the changes involved in supporting the Requesting Party as part of the DCC SMETS1 Service would be negligible on their reporting solution and would not have a material effect on the continued

performance of the systems, or the performance or capacity of the migration process. Therefore, System Capacity testing for Requesting Party will not be in scope.

DCC recognises the concern on the testing of the new DCO testing component. DCC can clarify that the DCO test environment is of the same size as the DCO production environment. DCC are currently testing the DCO component at the anticipated traffic levels for IOC, MOC and FOC. The actual environment capability tested will be included in the System Capacity Testing Completion Report.

DCC notes the comment on dynamic scaling solution in clause 3.6 of the consulted SCTAD. DCC can clarify that this has already been communicated to suppliers through the existing supplier capacity forum. For clarity, the term dynamic implies flexible in this context. So, in case of any additional capacity requirement, the solution capacity can be increased by adding hardware and or software components.

5.1.2 Testing approach

Reliance on previous evidence for MOC and FOC

Three respondents challenged the statement in the SCTAD relating to DCC being able to rely on previous evidence when conducting further testing and assessing System Capacity Testing completion for MOC and FOC. Concerns were raised that it was not clear what level of risk this would introduce. One respondent commented that the SMETS1 Service Providers (S1SPs) are different for IOC, MOC and FOC and therefore previous evidence should not be relied on. The respondent commented that an amendment could be made in the SCTAD which specified that relying on previous evidence should be with the exception of the S1SP System Capacity Testing.

DCC Response:

DCC notes the concerns. DCC can confirm that where we introduce new components or solution, we will test these elements. However, where components, solution or volumes are unchanged DCC propose to rely on the existing test results. The SCTAD has been amended to reflect this.

Clarification on load, peak, stress and soak testing

Several respondents sought clarification on load, peak, stress and soak testing. On load testing, it was noted that this should be at a high enough volume to allow catch up processing if there has been a previous service outage. Additional clarification was also sought on whether there would be an element of soak testing. Respondents asked for clarification on the scope of stress testing per component, and the maximum capacity in which stress testing would be determined. Respondents requested clarification on whether all the testing was based on peak volumes. One respondent also queried the assumptions around what constitutes peak conditions and highlighted that this could vary significantly.

DCC response:

DCC notes the comments that load testing should be carried at a high enough volume to allow catch up-processing. DCC can confirm that DCC testing is based on peak loads. DCC can confirm

that all systems can process peaks loads and have sufficient headroom to process any queued demand as a result of an outage.

DCC can further confirm that DCC Service Providers have stress tested in excess of the observed peak traffic. Therefore, the stress testing will be at a higher level than those modelled at peak volumes. The results of stress testing will be covered in the System Capacity Testing Completion Report.

DCC acknowledges the comments in the responses on soak testing. DCC can confirm that soak testing will be undertaken on the following infrastructure components:

- Data Service Provider (DSP);
- Commissioning Party (CP); and
- SMETS1 Service Provider (S1SP)).
- Dual Control Organisation (DCO).

Regression testing

One respondent commented that it was not clear what regression testing for System Capacity Testing scope or functional scope would occur in the case where there is a code change or configuration change required to complete System Capacity Testing.

DCC Response:

DCC, as set out in Clause 9.3 of the SVTAD shall ensure an adequate level of regression testing shall be used to test the Modified DCC Total System to ensure defects are not introduced or uncovered as a result of changes made when the software or its environment is changed. DCC Service Providers will undertake a number of tests to ensure that there is no degradation in performance. DSP will re-run the baseline of Release 2.0, in parallel with SMETS1 traffic, to validate there is no degradation in performance. For the rest of the infrastructure components, a sub-set of tests will be a part of MOC and FOC System Capacity Test execution. We will be conducting a final full regression test before go-live. In addition, we are running continuous integration regression on a daily basis.

Non-Functional Requirements and monitoring

Three respondents commented on the testing of Non-Functional Requirement (NFRs) such as CPU usage, memory, disk and network traffic. The respondents highlighted that it was not clear where the NFRs that are being tested are defined or whether they are appropriate. They commented that without them it is not possible to assess successful completion of System Capacity Testing since there is nothing to compare actual results to in terms of expected / acceptable results. It was suggested that these should be included in the SCTAD. Respondents also asked for clarification on whether the DCC Service Providers have system monitoring tools in place to identify potential issues.

DCC response:

DCC can confirm that each DCC Service Provider monitors their infrastructure using various tools. Performance metrics against NFRs such as CPU usage, memory, disk and network traffic, network connection, are set for each sub-component within their system and an incident is raised if

thresholds are breached. In addition, DCC's Technical Operations Centre (TOC) monitors the DCC Service Provider systems against metrics. TOC monitors the speed, volume and success rate of traffic going in and out of each DCC Service Provider system at each stage in the journey. TOC also monitor the gamma link. If TOC identifies any issues, they are raised with the relevant team. However, DCC notes the concerns and consider that it is important to make this clearer in the SCTAD. The SCTAD has been amended to clarify that DCC Service Provider have a general obligation to identify system performance measurement which can be used to diagnose performance and identify potential issues before they occur.

DCC do not consider that specific NFRs need to be defined in the SCTAD as it is an approach document which sets out the methodology utilised as part of System Capacity Testing. NFRs are agreed as part of the Service Provider test plans with DCC providing assurance that they are suitable. These NFR metrics are set as the target performance metrics and the results of testing against them will be reported in the System Capacity Test Completion Report.

5.1.3 Governance and independent auditor

DCC received comments from six out of the nine respondents around the governance arrangements for System Capacity Testing. Respondents were concerned that the governance arrangement would allow DCC to unilaterally agree scope or de-scope tests and agree successful completion of System Capacity Testing. Concerns were raised that there was no external governance and queried why System Capacity Testing exit was not required to be agreed by TAG and the SEC Panel as per other Test Phases.

Five respondents also called for an independent technical auditor to be put in place to review the scope of System Capacity Testing and to assess and validate whether DCC has successfully completed testing.

One respondent asked a number of questions around the entry and exit criteria. These included:

- How defect severity levels were assessed for System Capacity Testing given the NFRs are not clear in the approach document;
- What is the scope of the planned tests and how can success be determined if they are not included in the SCTAD.

DCC response

DCC notes the comments on the governance arrangements for System Capacity Testing exit. DCC considers that it is appropriate for DCC's Test Assurance Board (TAB) to review and approve the System Capacity Testing Completion Reports. The Reports will be factual and will be reporting on the results using the methodology set out in the SCTAD. TAB will consider whether the exit criteria has been met before determining whether System Capacity Testing is complete. This is a factual consideration rather than a subjective decision being taken. System Capacity Testing will also be reported on in the Live Service Criteria (LSC) submission which will be submitted to BEIS, the SEC Panel and its sub-committees for consideration as part of the governance for go-Live

As part of DCC's assurance role, we carry out witness testing of DCC Service Providers undertaking System Capacity Testing. DCC validates that the progress that DCC Service Providers have been reporting aligns with the evidence. DCC witnesses actual tests, evidence of progress and planned test executions for that day. However, DCC notes the concerns raised in the response and on that basis, have appointed an independent auditor for the purposes of System

Capacity Testing. DCC have amended the SCTAD to include an obligation to appoint a System Capacity Test Auditor. The scope of the independent audit does not include a review of the SCTAD including the volume model. The SCTAD is consulted on with industry and subject to approval by the Secretary of State. The Independent Auditor will assess whether System Capacity Testing has been conducted in line with the approved SCTAD. The audit report will be included as part of the System Capacity Testing Completion Report with the exception of IOC which shall be published as soon as reasonably practicable after publication of the System Capacity Testing Completion Report. DCC considers that the risk of not having the audit report in time for IOC completion to be small particularly whilst volumes are low which will be the case for the initial DMCs on to the Eligible Product Combination List (EPCL) for IOC.

DCC notes the question on testing issue severity levels. DCC can clarify that where Testing Issues are identified then the normal definitions will be applied to assign Severities. System Capacity Testing is addressing NFRs, and the test results are expected to take the form of observations on whether the target capacity levels (established in the volume model) have been proved. Nevertheless, DCCs considers it is appropriate to record any Testing Issues that may arise and for these to be assessed against the threshold levels established in the SVTAD.

On test plans, each Service Provider participating in System Capacity Testing will submit a test plan to the DCC. This plan will be reviewed and signed off by the DCC. The DCC will confirm whether the plan has been fully discharged in the System Capacity Completion Report. The actual planned test and their relevant success criteria will be outlined in the scope of the System Capacity Test Completion Report.

5.1.4 Volume model

All of the respondents provided detailed comments on the volume model at Appendix A in the SCTAD. One respondent commented that they were pleased to see that DCC had produced the volume model that it would use for testing.

Two respondents noted that the tables in the model DCC intend to implement are blank. Four respondents noted that the graphs do not contain any detail in the x or y axis. Respondents felt that it therefore did not explain how the model would be implemented in any level of detail to derive tangible NFRs to allow success of any aspects of System Capacity Testing to be determined.

Six respondents challenged some of the assumptions referred to in the volume model and asked how they had been ratified with industry. These assumptions included:

- that suppression of alerts will be implemented in time;
- that SMETS2+ Devices will continue to be installed in credit mode only;
- that migration would always follow a ‘happy path’ rather and not factor in migration fall out and subsequent re-processing;
- the number of alerts per device per day;
- scaling and that Users will operate SMETS1 Devices in the same way as SMETS2+ Device; and
- the migration capacity limit and number of SMETS1 migrations.

Two respondents questioned only using 3 time periods and suggested that it is likely that peak usages have been averaged out and requested reassurance that any volume peaks of SRVs had

been captured and used in the volume model. They also commented that the model should allow for different processing patterns seen over the weekend.

There were a number of clarifications requested on the volume model which included:

- whether the volume model had taken account of the November 2019 release;
- whether the impacts of SMETS1 migration on SMETS2+ operational services such as 'Over the Air' OTA and I&C had been considered and been included in the volume model;
- whether DCC has used recent supplier forecast data and whether SMETS2+ and SMETS1 forecasts are split;
- whether SMETS1 Installation Migration (Credit and Pre-payment) can be split into two separate lines;
- whether DNO SRV activity, such as enrolment SRVs has been included in the volume model;
- clarifications on grouping in table A2 and whether they are based on business processes;
- clarification on whether Table A2 should include SRV4.14 for Prepayment; and
- clarification on table A3 and whether they are just SRVs or also acknowledgements and alerts.

DCC Response:

DCC acknowledges the comments noting that there are no numbers in the volume model. DCC can confirm that this was the intent as the SCTAD is drafted to establish a principle on how the numbers are calculated. The graphs are there for illustrative purposes and therefore do not include numbers. The actual numbers will drive the testing and be presented in the test Completion Report.

Assumptions

DCC notes the comments and concerns on the assumption in the volume model but believe the underpinning assumptions and approach are appropriate.

DCC can confirm that it will be delivering the functionality to supress alerts for SMETS1 Devices. DCC will assess whether the suppression of alerts should be implemented prior to the introduction of volume migrations. In the meantime, DCC will monitor the impact of alerts volumes during the phased approach to the addition of DMCs on to the EPCL for IOC.

DCC notes the comments on the assumption that SMETS2+ Devices will continue to be installed in credit mode only. DCC can confirm that the model includes SMETS2+ Devices in both credit and pre-pay mode.

DCC notes the comment on migration 'happy path'. DCC can clarify that System Capacity Testing will test SMETS1 affected components of the Modified DCC Total System using anticipated peak migration and BAU traffic of SMETS1 and SMETS2+ Devices to prove that there is no adverse impact on the SMETS2+ Service. DCC can confirm that it will exercise the capacity of the execution paths, both negative and positive and that the volume model includes sufficient spare capacity to cover reprocessing where migration fails. This will be reported in the Test Phase Completion Report.

The assumption of one alert per device per day is based on behaviour that has been seen with SMETS2+ Devices. It is understood that there are some live service issues which result in a small

number of devices raising large numbers of alerts. There is ongoing work through Technical Specification Issues Resolution Sub-group (TSIRS) to resolve nuisance alerts in a timely manner. It is assumed that this issue will be rectified prior to MOC and FOC.

In response to comments, DCC can clarify its assumption on scaling. DCC consider that SMETS2+ profiling of SRVs traffic should be representative of the predicted SMETS1 SRV traffic. SMETS1 migration is included in the volume model and has been separately modelled. DCC acknowledge that the future traffic changes will occur as usage of the smart infrastructure changes and this will be accommodated through traffic forecasts by suppliers. The volume model will be updated with the latest forecast volumes during MOC and FOC.

DCC can confirm that its working assumption is based on 50,000 migrations per day. This has been used as the indicative maximum number of migrations per day and whilst DCC have a capacity of 70,000, we do not expect to reach those numbers when we go-live DCC can confirm that the DSP solution is exercised with SMETS2+ I&C and BAU traffic in parallel to SMETS1 migration traffic to prove that there is no adverse impact on the SMETS2+ service.

DCC can confirm that we have made use of the forecasted peak traffic as observed as set out in the volume model. Load testing has therefore been testing against peak load averaged over an 8-hour period.

DCC has not assumed any special pattern of usage for the weekend based on our observation. DCC have assumed that the weekend usage will not be higher. The values in the volume model will be updated based on real life observations.

Clarifications

DCC can clarify that the November 19 Release does not result in any change in volume and therefore has no effect on the model.

DCC can clarify that SMETS2+ I&C and SMETS1 migration is in the scope of DSP System Capacity Testing. DCC can confirm that OTA SRVs are included in the ‘other SRVs’ categories of SRV in the volume model. The volume of SRVs tested will be included in the System Capacity Testing Completion Report.

We can confirm that in its Volume Model it has used the forecasts provided by Energy Suppliers in February 2019 to calculate peak volumes.

We are also able to clarify we are not able to separate Credit and Pre-payment in table A1 in the volume model as we will not be aware of what mode the meter is in. As we progress for each of the operating capabilities, DCC will re-evaluate the split in Credit and Pre-payment and recalculate the volumes for each operating capability.

DCC acknowledges the comments on the Distribution Network Operator’s (DNO) SRV activity and whether it has been included in the volume model. DCC can confirm that it will include the DNO SRV activity in the volume model.

DCC notes the comment on whether the groupings in table A2 in the volume model have been mapped to DCC Business process. DCC can confirm it has re-examined the grouping based on DCC business processes.

We also note the comment on the inclusion of SRV4.14 and will amend the SCTAD to include it in the volume model.

Finally, DCC can confirm that as well as SRVs, acknowledgements and alerts are included in table A3.

5.1.5 Timing of consultation and System Capacity testing

A number of respondents highlighted concerns related to timeframe for the production of the SCTAD, and the alignment with the schedule for System Capacity Testing and completion. Respondents stressed that Test Approach Documents should be agreed before the start of a test phase and that DCC were testing at risk before the SCTAD was approved. There was a concern that comments on the consultation would not able to be considered in a timely was for changes to be made.

DCC response

DCC notes the concerns raised regarding the timeframe for System Capacity Testing and the approval of the SCTAD. DCC acknowledge that timing is suboptimal for the approval of the SCTAD and completion of System Capacity Testing, however we will not be seeking formal completion through TAB until after the SCTAD is approved.

5.2 Timing of Approval of SCTAD

Eight respondents responded to question 3 which asked whether they agreed with the proposed approval date by BEIS for the SCTAD of 21 June 2019. Three respondents agreed with the proposed date for approval noting that it needed to be approved as soon as reasonably practicable in order to support IOC go-Live. Five respondents were not supportive of the approval date. Respondents commented that the proposed approval date did not provide sufficient time for DCC to consider responses and issue its conclusions on the back of this consultation. Concerns were raised that the tight timing would mean that DCC would not be able to accommodate any increase in scope of System Capacity Testing in response to comment to the SCTAD consultation.

DCC response

DCC acknowledge that timing is suboptimal for the approval of the SCTAD and completion of System Capacity Testing, however, as noted above, we will not be seeking formal completion through TAB until after the SCTAD is approved. DCC can confirm that, should the approved version invalidate any elements of the testing conducted, this will be addressed prior to completion

DCC acknowledge that having the test approach document agreed before the start of a phase is the preferred approach to testing delivery which we will strive to adhere to in future. DCC acknowledge that timing is tight for analysing responses to this consultation but can confirm that full consideration has been given to responses on our System Capacity Testing approach. This is evidenced by the inclusion of the appointment of an independent auditor, soak testing and the summary of changes in section 6.

DCC notes that there were more respondents who objected to the proposed date for the Secretary of State approval. DCC have delayed its submission of the SCTAD to Secretary of State so as to accommodate changes to its System Capacity Testing approach following consideration of the

responses to the SCTAD consultation. DCC submitted the SCTAD for approval on 27 June 2019 which remains consistent with the overall SMETS1 timeline. The proposed approval by BEIS date of 21 June 2019 provided for the approval to be within one month of this date.

6 Summary of changes to the SCTAD

In light of the consultation responses received, DCC have made the following changes to the SCTAD.

Drafting Change	Description
Clause 3.3	Terminology clarification.
Clause 3.3.2	Amended to clarify that DCC would only be able to rely on evidence from earlier testing. if there has been no change to any of the components of the Modified DCC Total System within scope of System Capacity Testing.
Clause 3.5(a)	New line added to the DSP scope to clarify that DCC shall test the DUIS3 gateway and shall uplift all the tests to DUIS3 schema. DUIS3 deleted from the excluded from scope section as a consequential change.
Clause 3.6	New bullet added to clarify that soak testing shall be used by DCC as one of the System Capacity Tests.
Clause 3.8	Additional line added which places an obligation on DCC to seek assurance from the SMETS1 CSP that it can manage expected capacity increases associated with SMETS1 Services.
Figure 1	Figure 1 has been amended in response to the consultation responses. Changes include: ▪ DSP sub-component amended to show DUIS3 as it is part of scope of SCTAD ▪ Definition of HA included. ▪ Illustrated Service User emulator
New clause 5	New clause added on the appointment of an independent auditor for System Capacity Testing.
Clause 6.3	Additional text added to specify that each System Capacity Testing Completion Report shall include the relevant Independent System Capacity Test Auditing

Drafting Change	Description
	Report with the exception of IOC where the report will be published as soon as practicable.
Clause 7.2	Line added to made clear that Service Providers are responsible for identifying & monitoring the infrastructure performance measurement to diagnose performance and identify potential issues.
Clause 7 – Appendix A	A number of amendments have been made to Appendix A on the volume model in response to comments. Some drafting amendments have been made to Clause 7 to help provide further clarity. Other changes include: ▪ Figure A1 - SMETS1 Migration Model amended to define axis and make it clearer. ▪ Table A1 – Reference to all User activity added (which would include DNO SRVs). ▪ Table A2 – Amendments made to show link to DCC's business processes and to include SRV 4.14 for Pre-payment. ▪ Figure A2 included to provide clarity on messaging paths.

7 Next Steps

Following the submission of the SCTAD to the Secretary of State, DCC expects the Secretary of State to make a decision on whether and when to approve the SCTAD.