

# **Request for Information**

RFI

Smart Metering Device Assurance Scheme Operator

Energy UK, BEAMA, EUA, CMAP Initiative on Smart  
Metering Device Assurance

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## **Confidentiality**

All information included in this RFI is not confidential.

## **Disclaimer**

We have used reasonable endeavours to ensure the accuracy of the contents of this document but offer no warranties (express or implied) in respect of its accuracy. To the extent permitted by law, no parties accept liability for any loss which may arise from reliance upon information contained in this document. This document is presented for information purposes only and none of the information, proposals and options presented herein constitutes an offer.

## **Introduction and purpose of the RFI**

The purpose of this RFI is to gather information to consider the next steps for Smart Metering Device Assurance (SMDA) development, which is described further in the body of this document. There is no preconceived view on the route we need to take and the RFI is intended to ask a number of open questions for consideration of the next steps in SMDA development. This is a request for information (market proving exercise) as opposed to a formal invitation to tender and is not part of a formal procurement process. With this RFI we request your views on how SMDA should be progressed and information regarding how you might deliver an SMDA scheme using your products/services.

We are particularly asking for information on how a Scheme Operator might operate and be implemented as a self-governing and self-funding scheme, as described in more detail in the RFI below.

We hope that respondents will provide a level of detail within their feedback to provide confidence that they understand the complexity of the issues, provide evidence of understanding and articulate robust operational processes and delivery plans. We would welcome the use of practical examples where relevant.

## **Scope**

SMDA development has been initiated by Energy UK, BEAMA, Energy and Utilities Alliance (EUA) and Community of Meter Asset Providers (CMAP). An industry SMDA Working Group has been established to progress development. The SMDA Working Group currently includes energy suppliers, meter manufacturers, Meter Asset Providers (MAPs), Ofgem, DECC and DCC (for those elements that relate to the use of DCC materials and test environments). We would like to see more representation from smaller energy suppliers and would welcome contact and engagement from all energy suppliers in our work.

The objectives of the Smart Metering Device Assurance (SMDA) Group are:

- To provide assurance that smart metering equipment complies with SMETS2 (Smart Metering Equipment Technical Specification 2) and is interoperable and interchangeable
- Consider a central voluntary scheme to provide a cost effective way to deliver this assurance

This RFI includes material developed by the SMDA Group to inform respondents or any party who wishes to be informed on the progress of this initiative.

## **Initiating Parties**

Energy UK is the trade association for the gas and electricity sector, representing a wide range of interests and driving forward the debates on the UK's strategy for achieving a low carbon, secure and affordable energy future. It includes small, medium and large companies working in electricity generation, energy networks and gas and electricity supply, as well as a number of businesses that provide equipment and services to the industry.

BEAMA is the trade association representing primarily manufacturers of electrical plant and equipment, including electricity meters, communications hubs and energy displays.

Energy and Utilities Alliance (EUA) is a not-for-profit trade association that provides a leading industry voice to help shape the future policy direction within the energy and utilities sector.

Community of Meter Asset Providers (CMAP) was set up in 2011 to address the MAP concerns in Traditional and Smart Meter Markets. The community is open to all Commercial Meter Asset Providers and is not exclusive. CMAP will help set up the scheme but do not see themselves as being part of the board or on the panel of the scheme operator. The CMAP only requires assurance that the equipment is interoperable and interchangeable and would require this certification to be given by the MMF and Energy Retailers. This includes any applied Firmware upgrades to maintain compliance. The CMAP would have no liability under this scheme but are fully supportive of this initiative and will continue to provide input throughout the RFI, setup and continued advice as required.

These organisations have come together in a joint initiative to consider a governance and testing regime to provide the appropriate assurance that SMETS2 equipment is compliant, interoperable with DCC and interchangeable.

## **RFI procedure**

The RFI includes a set of questions within the main body. We request that the RFI Part 1 - Company Information and RFI Part 2 - Your Approach to Meeting Our Requirements are used to complete your responses and these are returned in MS Word format to Craig Handford ([craig.handford@engage-consulting.co.uk](mailto:craig.handford@engage-consulting.co.uk)) by the noted deadline. Please limit your response to the questions included in the RFI to a total of 25 pages. You may include additional information in an appendix but this may not be considered as part of your response.

This RFI is (or will be) available on the following websites:

- EUK: [www.energy-uk.org.uk](http://www.energy-uk.org.uk)
- EUA: [www.eua.org.uk](http://www.eua.org.uk)
- BEAMA: [www.beama.org.uk](http://www.beama.org.uk)

Should you require assistance in responding or have any questions, please contact Craig Handford ([craig.handford@engage-consulting.co.uk](mailto:craig.handford@engage-consulting.co.uk)) 07791 484 993

Responses to questions that affect or clarify the overall process may be sent to all RFI recipients where appropriate.

The answers to this RFI will be reviewed by appropriate representatives of Energy UK, BEAMA, EUA, CMAP. The responses will be used in consideration of the next steps to progress SMDA. All responses will be treated confidentially amongst these organisations and their members unless otherwise marked.

### *Timeframe*

This is the timeframe for the RFI

24<sup>th</sup> December 2013 – The RFI is sent out to those interested parties that have been identified to date and published on the Energy UK, BEAMA and EUA web-sites before the end of the year

17th January 2014 – Last date for questions

31st January 2014 – Last date for submission of information

## Background description of what is requested

### Introduction & Context:

The key driver for this Request For Information is to investigate the most effective way for energy suppliers to establish a scheme to meet their regulatory obligations (set out in their Licence Conditions and the Smart Energy Code, SEC) to deploy and maintain SMETS2 compliant and DCC interoperable smart metering equipment<sup>1</sup> and to provide assurance that 'in home equipment' is interchangeable.

The responsibilities for metering equipment transfers when a customer changes their energy supplier. At the change of supplier event the Licence Conditions and obligations covering the equipment transfer at the same time. Gaining energy suppliers therefore need confidence that the metering equipment inherited meets the relevant Licence Conditions, is SMETS2 compliant and interchangeable with other compliant / assured equipment.

The Government has set out its policy on SMETS compliance and interoperability in its testing consultation response document. Additionally, the Government requires that metering equipment is protocol certified, CPA certified and meets Smart Metering Key Infrastructure (SMKI) testing requirements (as set out in the SEC3 consultation document<sup>2</sup>) and that equipment will be added to a centrally maintained certified products list.

This Government policy does not include the establishment of a central certification or accreditation regime to determine if equipment is SMETS compliant and/or DCC interoperable, and the manner in which this assurance is provided is at the discretion of individual suppliers.

The onus is on energy suppliers or their agents to carry out additional testing to provide assurance that any other equipment is functionally SMETS 2 compliant, interoperable and interchangeable.

Some Suppliers and Meter Asset Providers have identified a common benefit in establishing a central assurance regime to encompass SMETS compliance, DCC interoperability and also to include interchangeability testing. The options that are available have been considered through a joint initiative led by Energy UK, EUA and BEAMA with significant involvement of CMAP. Input from small suppliers has been encouraged. Any scheme that may be implemented as a result of this initiative is non mandatory and suppliers can assure the compliance of their meters in a manner that they deem appropriate (noting that the level of assurance provided must enable the suppliers to meet their regulatory obligations).

The proposed centralised SMDA for SMETS2 metering equipment would meet a number of stakeholders' requirements:

- a. Energy suppliers have regulatory obligations as above to install compliant and DCC interoperable SMETS2 equipment; and require surety that the devices they are installing are interchangeable

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<sup>1</sup> As set out in the Government Consultation response  
<https://www.gov.uk/government/consultations/smart-metering-system-and-equipment-testing>

<sup>2</sup> <https://www.gov.uk/government/consultations/new-smart-energy-code-content-stage-3>

- b. MAPs need confidence that the assets they are procuring on behalf of suppliers meet the required standards and are interchangeable. Energy suppliers need to be confident that the assets procured by a MAP meet these requirements to minimise cost and customer impact
- c. Meter manufacturers (BEAMA and EUA) need a test and assurance process that will be efficient, economic and that will give confidence to their customers

The DCC is being asked to test at least two variants of each type of equipment to demonstrate system integration with DCC services. However, industry only has assurance that DCC Users can interoperate with the variants of each equipment type that is taken through Interface Testing. There is no contractual obligation for DCC to use fully accredited equipment. Equipment will therefore need to be subject to further testing to provide the necessary assurance to energy suppliers. There is a description in the Requirements and Service Appendix of how SMDA testing fits in with other testing phases, including that required by and for DCC.

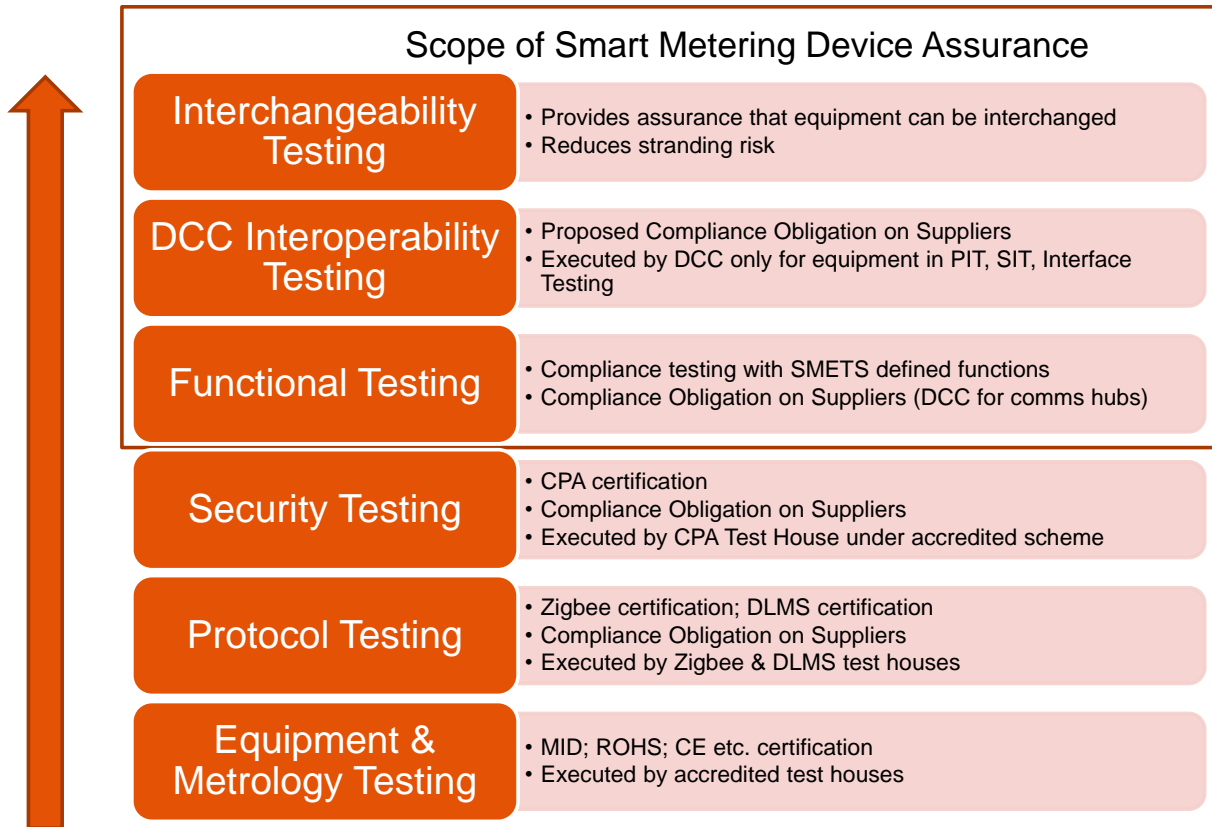
There is to be a “deployed products list” maintained centrally at DCC to which energy suppliers can notify their field-deployed equipment sets. However, there is no obligation to inform DCC of this equipment and it is maintained for information only under the current DECC proposals. Therefore, it cannot be considered a definitive list of assured and deployed products.

Without this additional proposed testing being universally applied, the assurance of interoperability and interchangeability is likely to be compromised. This is likely to have a significant impact on the ability of the market to exchange equipment or deploy different individual equipment items (e.g. replacement In Home Displays, separate gas & electricity meters for single fuel supplies).

We will also have a situation where a subset of in-home equipment (gas meter, electricity meter, IHD, communications hub) will have passed through a centrally managed set of DCC system integration and interface tests whereas other equipment will not have to or may be subject to tests as defined by suppliers which may be inconsistent and to varying levels of assurance. The CSPs have responsibility in assuring that their communications hub assets perform all the functions expected of it to comply fully with SMETS2.

### *Statement of need*

We have considered the different phases of equipment testing defined and what testing should fall under the scope of SMDA and this is described in the diagram below:



There is potentially additional testing for SMKI that will need to be considered as part of this overall picture. However, this is currently regarded as outside the scope of SMDA at this stage. We do not expect that accelerated life (testing that device will continue to function correctly over the anticipated asset lifespan) testing will be part of SMDA.

The proposed Smart Metering Device Assurance regime will be voluntary with no legislative obligation on industry players to use this approach. It is being developed as a joint initiative by energy suppliers, manufacturers and asset providers to meet a market need. As such, it will only be a service for energy suppliers to subscribe to and for equipment manufacturers to submit their equipment to – all on a non-mandatory basis.

The benefits of establishing this regime into a consolidated service include:

- Economies of scale leading to overall cost efficiencies
- Consistency of testing
- Reduction of operational issues and disputes
- Ongoing assurance of any changes that may be made within the equipment operational lifecycle

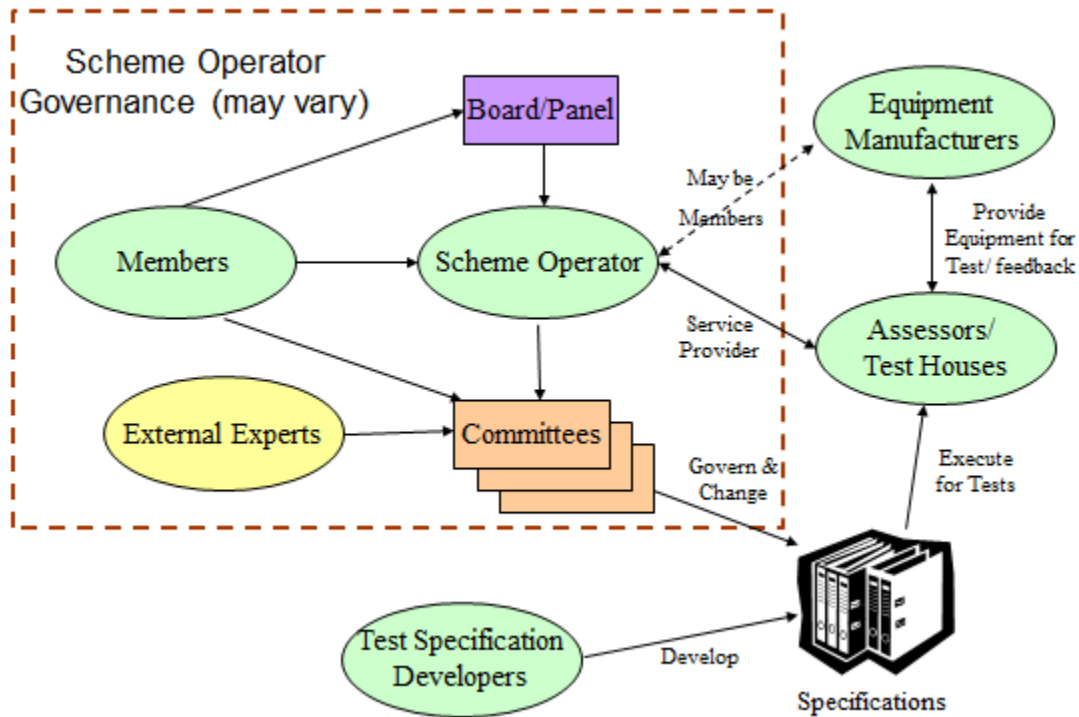
Therefore, this initiative currently has the support of all Energy UK, BEAMA, EUA and CMAP members and we would expect those members to subscribe to their relevant elements of the service, providing a critical mass from day 1. This is essential for a self-governing and self-funding scheme under a Scheme Operator, as described below.



## Requirements

### Structure of SMDA Scheme & Roles/Responsibilities

As part of SMDA development, the Working Group has considered a number of existing similar schemes, as well as the UK Accreditation Service (UKAS) framework for accredited schemes and defined a generic structure that we expect to be able to support SMDA testing. Below is a representation of the structure of the SMDA scheme with key roles and responsibilities identified:



The area denoted by the red box is the scope of the Scheme Operator services that we are requesting information on in this RFI. It is expected that the Scheme Operator will be governed by its own articles of association and corporate governance. There is flexibility in this structure to allow different models. We are expecting that experts from members or any other relevant external party wishing to contribute could be included in committees to support governance. As part of the response to the question below, we expect respondents to explain how members might have representation on any Board/Panel and therefore be able to assure governance.

The scheme operator would be responsible for the governance and administration around the testing, whilst the testing would be executed and undertaken by appointed test house(s). The expectation of the Steering Group is that the test house should be procured and appointed by the Scheme Operator. The Scheme Operator should:

- Be efficient
- Provide value for money
- Be flexible
- Be credible, providing the assurance that suppliers and MAPs need from manufacturers

The intention is to submit the SMDA scheme to UKAS to become one of its future accredited schemes to ensure we achieve international best practice. We don't need this to be an UKAS

accreditation scheme from the first day of operation and UKAS have suggested that it is best for the scheme to be operational first before going through a formal UKAS process. The intention is to keep UKAS fully engaged on our development to try to make the UKAS accreditation process simpler at the appropriate time.

We expect that the scheme operators will be established long term. However, we anticipate that this will be an enduring scheme run under suitable governance in perpetuity (unless there is a serious issue with the scheme or scheme operator). We would welcome views on term and also how any period of relationship with test houses might be implemented. We recognise that it may be more efficient to start with one test house with multiple test houses to follow and would welcome views and options presented by respondents.

The structure is provided for guidance, but is flexible for potential scheme operators to show how they would implement the scheme in different ways. We would welcome views on how this could be successfully achieved.

**Q1. What will be respondents' approach to incorporating this scheme into their existing governance or establishing appropriate new governance and establishing a suitable framework for operation? How much synergy can be taken from the respondents existing systems and processes?**

**Test Specification Development:**

As part of our development work, we have started to develop the structure and content of test specifications for each type of testing. We have split development into three sets of testing to reflect the different characteristics of the three types of testing. There is likely to be different development paths for test specifications for the different types of tests:

- Functional Testing
- DCC Interoperability Testing
- Interchangeability Testing

There may be the opportunity to phase testing and we would welcome any views from respondents on this.

The test definition will include:

- Defined entry and exit criteria
- The equipment to be tested
  - Electricity Smart Metering Equipment
  - Gas Smart Metering Equipment
  - Communications Hub (Inc. Gas Proxy Function and Communications Hub)
  - IHD
  - At a later stage –PPMID and ALCS (Inc. HCALCS)
  - Lowest priority – HHTs, depends on DCC plans for use of HHTs , CADs

We would welcome the views of respondents on how to scope the test requirements for all devices that form part of the SMHAN as above and whether/how any prioritisation should be applied.

Key design baseline product input for the test specifications from DECC & DCC will be:

- GB Companion Specification (GBCS)V0.6 rev 0009 and its associated use cases
- SMETS2 V1.3
- DCC User Gateway Interface Specification (DUGIS) when it follows the DCC User Gateway Catalogue (DUGC V4.0)

The DCC developed Common Test Scenarios (CTSs) will be considered re-usable, particularly for DCC Interoperability Testing, noting they will not be available until 6 months before Interface Testing. The current DCC approach is for each energy supplier to develop test packs containing test scripts that will meet the CTS. Suppliers will have to do this exercise regardless to prove their back office systems work with the DCC, however for the testing of the SMETS2 metering equipment it may be possible to have one SMDA test regime defined test pack with single set of test scripts to prove the equipment behaves as expected on receipt of command passed to it via the DCC. Any such test pack will be subject to DCC review to ensure it meets the DCC interface requirement specifications.

We will be asking the Scheme Operator to develop or procure the means to develop test specifications. The expectation is that the Scheme Operator will take on our prototyping/development work and develop/contract to develop the test specifications.

The latest development position for test specifications, including the context of other testing is included in the Requirements and Service Appendix.

**Q2. Given the information in the RFI, what will respondents' approach be to delivering the test specifications and with what plan and timescales?**

**Test Readiness & Execution:**

The expectation is that the Scheme Operator will procure/establish multiple assessors/test houses to execute the tests on equipment.

The expectation is that tests will be executed against a common, centrally managed set of testing specifications.

There will be test environments available from DCC and we are asking questions of DCC as to how test environments might be used (particularly for DCC Interoperability Testing). We need to consider how we deliver on our principle of minimising test environments.

We could allow an in-house service as starting point with multiple external assessors / test houses to be procured / engaged later. However, this would depend on timing, cost, delivery risk and a number of factors that we expect respondents to consider. We expect that any procurement might introduce time, but will engender competition and therefore reduce costs.

There is an expectation that test houses undertaking test execution should be suitably accredited (e.g. ISO17025 UKAS accredited) and tests performed under this scheme lie within its scope of accreditation.

We realise that the Scheme Operator needs as much detail as possible on the test specifications before contracting/establishing test houses.

At this stage, we do not know what volumes of equipment might be brought into this test regime and when. There is likely to be a spike in activity to test equipment before, at and just after Q3 2015 in line with the published smart metering Go-Live date. We recognise that some indication of volumes will be required in the future. However, the size of the smart device manufacturer market, the devices that make up a smart metering system for the home and its customer base (i.e. energy suppliers) should give an outline view of the potential market for the SMDA scheme and its services.

The Scheme Operator and test houses/assessors should be distinct and separate entities in order to eliminate any conflicts of interest. How this relationship works is extremely important to the robust operation of the scheme. We are keen to learn from respondents how they would propose:

- To build and manage these relationships;
- The scheme operator assesses the competence of the test houses; and
- To embed the operational relationship into governance of the scheme (i.e. how the relationship in the governance model above will work – will it be contracted? will it be an assessment of competence of the test house/assessors by the scheme operator? how will this be reflected in scheme operator documentation?).

Views from respondents will be considered against our requirement to ensure that there is fair and open competition for test houses/assessors.

**Q3. What will respondents' approach be to procuring/establishing assessors/test houses to execute the tests on equipment and how might demand be met?**

**Process to Assess Equipment (Hardware & Software) Submitted for Test:**

**Q4. How will respondents demonstrate the process they will undertake to consider the suitable level of testing for hardware and firmware that has been submitted for testing?**

**We have considered an example process below, but we would like respondents to provide their proposals and practical examples:**

1. Equipment (hardware and software) submitted for testing by Manufacturer *[to Test House directly or via Scheme Operator?]*
2. Impact assessment from scheme operator *[Test House/Assessor?]* against existing list of assured hardware and firmware and definition of testing to be undertaken
  - a. If new hardware, maybe the full set of tests
  - b. If small increment to firmware, maybe a reduced set of tests
3. *Scheme Operator schedules testing in collaboration with Test Houses*
4. Test House/Assessor executes set of tests notified from Scheme Operator
5. Test House/Assessor submits test analysis report and recommendation to Scheme Operator with recommendation on pass/fail
6. Scheme Operators agrees outcome and notifies manufacturer (with compliance mark if passed)
7. Scheme Operator updates list of compliant hardware and firmware if tests passed

Funding and payment arrangements for testing will need to be defined and we are interested in the views of respondents (see the commercial and funding question). We would expect that testing for equipment would be largely transactional and funded by equipment manufacturers [to the Test Houses/Assessors and/or Scheme Operator]

**Q5. What are respondent's proposals for the testing process?**

**Q6. What are respondent's proposals for managing liabilities and the models to adopt?**

**Q7. What are respondent's proposals for managing testing disputes and appeals?**

**Firmware Management:**

The Scheme Operator will maintain a register of all of the firmware versions that have been successfully tested for each Device Type, Device Model and Manufacturer Id.

**Q8. What are respondent's proposals for the firmware management and are there any further activities that respondents believe should be undertaken by the scheme operator?**

**Commercial Arrangements and Funding:**

The Scheme Operator must provide value for money and one of the options would be for the Scheme Operator to be a not for profit organisation.

It is expected that the Scheme Operator will initially be funded by its members to establish the scheme.

We expect that individual manufacturers will pay for the testing of their equipment. Ongoing operational costs, with scope to cover test facilities and future equipment enhancement should be covered by the fee structure. Cost recovery of fixed costs to establish and operate the scheme could also be considered. We welcome views on this aspect.

Initial views suggest flexible arrangements would allowed other commercial services to be offered as long as these were considered before adoption, governed by the scheme board and do not compromise SMDA testing.

We believe that liabilities around testing and assurance are aspects that seem to be well managed across all sectors. We do not believe that scheme operation has any significant differences that cannot be managed by existing approaches. However, we do seek views on liability management and comments on the approach used currently in the testing sector.

**Q9. What are the respondent's proposals for commercial and funding arrangements?**

**Mark of Compliance:**

We expect that there will be a mark of compliance associated with successful completion of the testing and that this mark gives confidence to the market. This could be a maintained and publicly available list of compliant devices rather than etching another trademark on the device.

We would welcome views on how to maintain compliance when a firmware upgrade can render equipment no longer compliant.

**Q10. What is the respondent’s proposed approach for an independent mark of compliance or equivalent to show the product has been through testing (e.g. trademark)?**

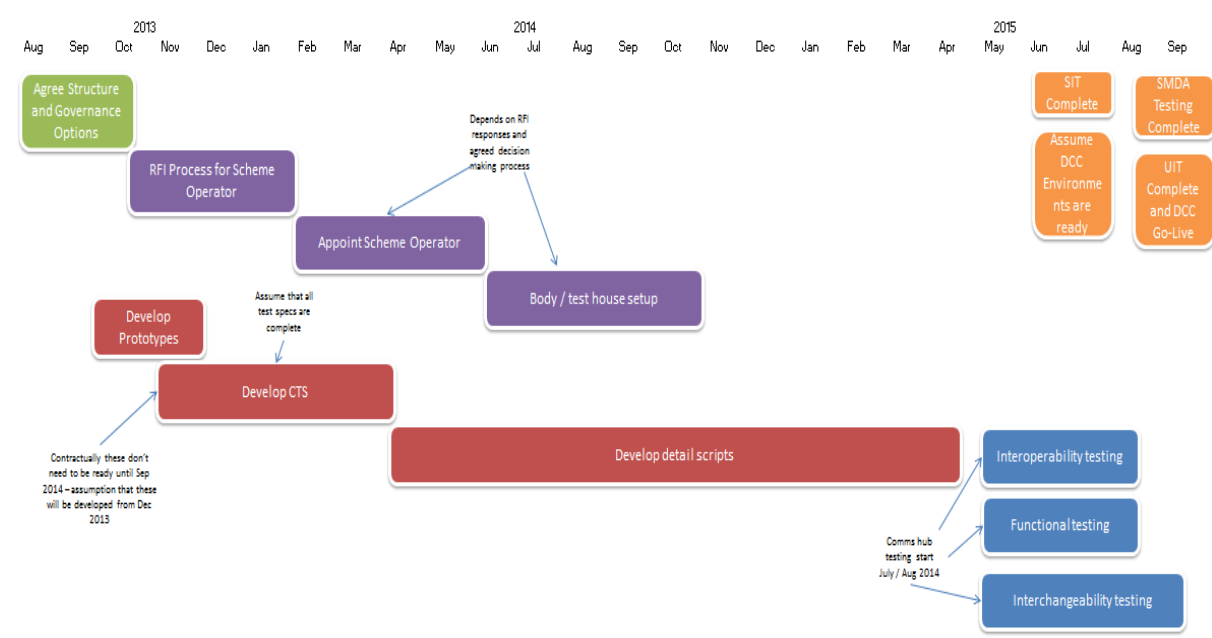
**UKAS Accreditation**

As stated earlier, the intention is to submit the SMDA scheme to UKAS to become a UKAS accredited scheme at a future date to ensure we achieve international best practice. We don't need this to be a UKAS accredited scheme from the first day of operation. UKAS has suggested that it is best for the scheme to be operational first before going through a formal UKAS process. The intention is to keep UKAS fully engaged on our development to try to make the UKAS accreditation process simpler to implement at the appropriate time.

**Q11. What are respondent’s views on this approach to accreditation and please provide your proposals on how to deliver UKAS accreditation onto our scheme?**

**Timeframe:**

We have a draft high level timeline set out below and which is in development with stakeholders and subject to review:



**Mobilisation & Activities to Deliver an Operational Scheme:**

We expect that a preferred organisation will be selected and then a number of members will approach that organisation to establish the scheme. Commercial and funding arrangements will

be influenced by response to this RFI. We are open to different proposals where respondents can demonstrate positive experience.

We will also need confidence that the respondents have a robust delivery plan for establishing the service and that this has reasonable delivery risk, cost and timing, capability to draw on resources, have logistical capability in terms of location, physical space to undertake activities and prepared sites.

We have included our current view of risks, assumptions, issues and dependencies in Appendix B for background and consideration.

**Q12. Please can the respondents provide their own plan and timeline for delivery of the SMDA scheme and test execution, together with any dependencies, risks, issues and assumptions.**

**Q13. Please can respondents provide an estimate of the cost to deliver the scheme and test execution with a split between costs for particular activities or products?**

**Service Principles:**

There are a number of service principles that have been developed in considering this scheme and these are described below (in no particular order, but numbered for ease of reference in RFI responses):

1. The scheme operator should:
  - a. Be efficient
  - b. Provide value for money
  - c. Be flexible
  - d. Be credible, providing the assurance that suppliers and MAPs need from manufacturers
2. We will use a central management model (this has been further developed above with RFI questions)
3. These will be voluntary arrangements available on a non-discriminatory basis, although we would hope that the benefits of this scheme would result in it being widely (hopefully universally) applied
4. The scheme operator should have a process for resolving disputes and members/participants need to abide by any dispute resolution
5. UKAS accreditation would be desirable to demonstrate international best practice/standards but the service can start without this for expediency
6. A test specification needs to be developed and then governed appropriately by the central body
7. The central body should administer technical committee(s) to advise and to manage the specifications
8. There need to be funding and commercial arrangements defined for the scheme
9. We need to challenge all options for positive cost benefit against the default position of all suppliers testing compliance with SMETS and DCC interoperability to meet their Licence Conditions. Responses to this RFI will deliver some draft cost information from respondents.
10. We must exit SMDA testing with production equipment ready for deployment

11. The central body will manage a library of versions of each Device Type, Device Model and Manufacturer Id tested successfully (it was preferred by the group for this to be held at DCC)
12. Upgrades to firmware should be documented and submitted by manufacturers for assessment by the scheme operator for any additional testing that might be required before approval for deployment
13. A level and structure of fees would be set for testing that drives appropriate behaviour (i.e. encouraging "right first time" testing)
14. We want to encourage the use of multiple test houses to ensure competition and value for money. This is dependent on a clear specification of the tests to be executed.
15. A level of fees would be set for testing that drives appropriate behaviour (i.e. repeated failed tests are suitably costly)
16. We should seek to avoid testing all combinations of all devices or the testing will become overly onerous
17. Need to include an appropriate level of negative testing into any test regime
18. Testing should be non-discriminatory and prioritisation should not be driven by potential volumes of deployed equipment or size of participant

**Q14. What are respondents' views regarding the numbers / combinations of devices which should be tested to provide that assurance?**

**Q15. What are respondents' views on the principles and are there any that might be compromised by respondents' desired approaches?**

We have developed a testing requirements document and RAID and these are included in the appendix.



## RFI Part 1 – Company Information

Question	Answer
Company name	
Company address	
Company website address	
Main products/services	
Main market/customers	
Ownership structure with ownership status in percentage	
Structure of mother corporation, joint ventures, subsidiaries, partnerships or other relevant relations	
Number of years operating	
Company location(s)	
Company Employees	
Company Financial information	
Last year company turnover	
Last year company profit	
Stock markets where your company is listed	
Contact person and responsible for answering this RFI	
Telephone	
Email	
Information Relating to these related services	
Last year related services turnover	
Last year company related services profit	
Employees working on related services (overall FTE if some part-time)	
Up to 3 reference customers using comparable products or services in the last 3 years (including contact information)	
Description of products or services delivered to those customers in the last 3 years that could be comparable to what is requested in this RFI	
Up to 2 reference customers using other products or services today not comparable with what is requested in this RFI in the last 3 years (including contact information)	

## RFI Part 2 - Your Approach to Meeting Our Requirements

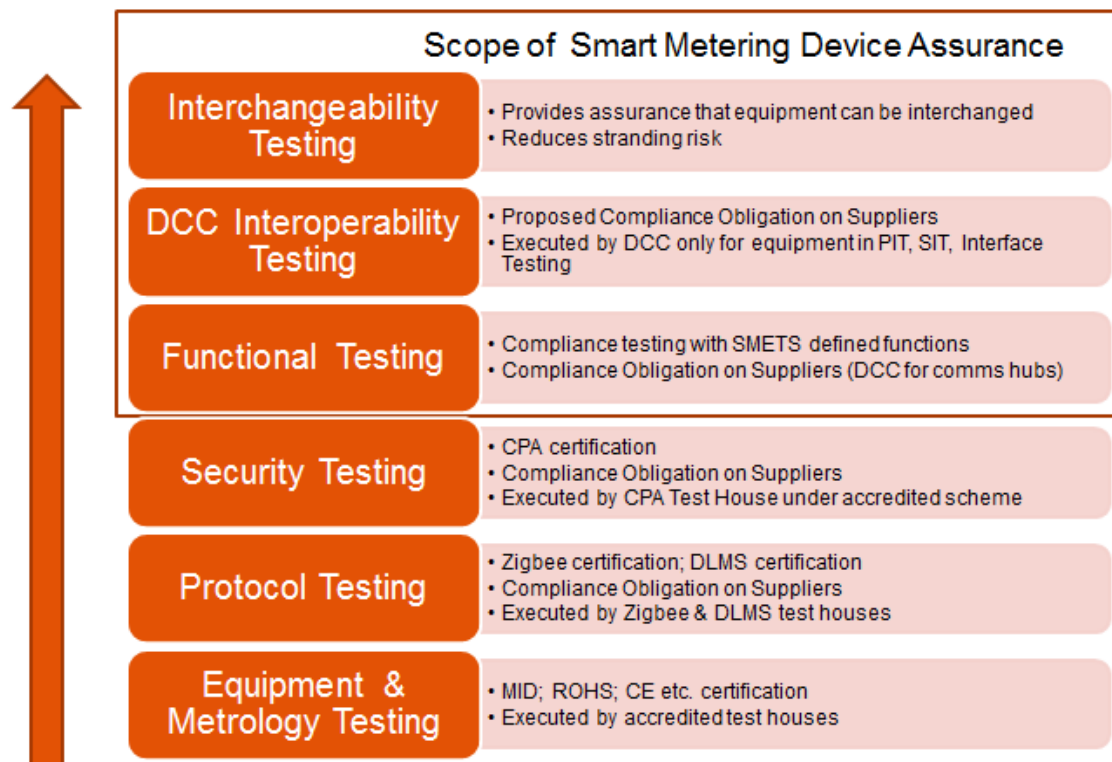
Please can you provide your response to the questions set out in the main body of the document?

- Q1. What will be respondents' approach to incorporating this scheme into their existing governance or establishing appropriate new governance and establishing a suitable framework for operation? How much synergy can be taken from the respondents existing systems and processes?
- Q2. Given the information in the RFI, what will respondents' approach be to delivering the test specifications and with what plan and timescales?
- Q3. What will respondents' approach be to procuring/establishing assessors/test houses to execute the tests on equipment and how might demand be met?
- Q4. How will respondents demonstrate the process they will undertake to consider the suitable level of testing for hardware and firmware that has been submitted for testing?
- Q5. What are respondent's proposals for the testing process?
- Q6. What are respondent's proposals for managing liabilities and the models to adopt?
- Q7. What are respondent's proposals for managing testing disputes and appeals?
- Q8. What are respondent's proposals for the firmware management and are there any further activities that respondents believe should be undertaken by the scheme operator?
- Q9. What are the respondent's proposals for commercial and funding arrangements?
- Q10. What is the respondent's proposed approach for an independent mark of compliance to show the product has been through testing (e.g. trademark)?
- Q11. What are respondent's views on this approach to accreditation and please provide your proposals on how to add to deliver UKAS accreditation onto our scheme?
- Q12. Please can the respondents provide their own plan and timeline for delivery of the SMDA scheme and test execution, together with any dependencies, risks, issues and assumptions.
- Q13. Please can respondents provide an estimate of the cost to deliver the scheme and test execution with a split between costs for particular activities or products?
- Q14. What are respondents' views regarding the numbers / combinations of devices which should be tested to provide that assurance?
- Q15. What are respondents' views on the principles and are there any that might be compromised by respondents' desired approaches?

## Smart Metering Device Assurance Working Group Requirements & Services Workstream

### What is Smart Metering Device Assurance (SMDA)?

1. We have defined SMDA at a high level:
  - Functional testing of SMETS2 functionality
  - Interoperability testing with DCC
  - Interchangeability testing between different equipment



2. As part of the Terms of Reference, we have considered how all testing regimes co-exist and whether there are any co-efficiencies or co-dependencies across separate test regimes.
3. Through its Testing Consultation response the Government concluded that:
  - Energy suppliers should be responsible for testing the compliance of the equipment that they choose to install against the Smart Metering Equipment Technical Specification (SMETS2) and should retain evidence of this testing.
  - The DCC should be responsible for the interoperable and functional testing of compliance of the communication hubs against the

Communication Hub Technical Specification (CHTS) and should retain evidence of this testing. The DCC could use this scheme to undertake this or choose to undertake those tests themselves. The communications hubs have to be an integral part of SMDA DCC Interoperability testing as part of the architecture.

- Energy suppliers should be responsible for testing the interoperability of the metering equipment that they choose to enrol with the DCC and should retain evidence of this testing.
4. There is also likely to be testing associated with SMKI and once more is known on this, we will need to consider this as part of the equipment testing picture.

### Testing Requirements

5. There are a number of testing phases that have been defined as part of testing for the Smart Metering Programme in GB and some of this has been set out in this section for context.
6. The latest publication from DECC on testing has been the Smart Metering system and equipment testing: consultation response:  
<https://www.gov.uk/government/consultations/smart-metering-system-and-equipment-testing>
7. This response contains the government's position on how the Data Communications Company (DCC) will be responsible for testing that its systems work in their own right and can interoperate with users' systems to deliver smart meter services. It also covers the responsibilities of suppliers and others in the industry in regard to DCC testing. It follows on from an earlier consultation on these issues.

### *DCC Service Assurance – Not Part of SMDA*

8. DCC Service Assurance will be delivered in Pre-Integration Testing (PIT), Systems Integration Testing (SIT) and User Integration Testing (UIT). This testing will confirm that the DCC systems and services meet requirements.

### *DCC User Service Assurance - User Entry Process Testing – Not Part of SMDA*

9. User Entry Process Testing can be demonstrated in Interface Testing and/or Enduring Testing (although timing for the large suppliers would suggest this needs to be complete in Interface Testing or the previous equivalent to End to End Testing). This will prove suppliers DCC interoperability and individual suppliers will discharge their licence obligations to be ready for Go-Live through this. This test phase will demonstrate connectivity to the DCC for suppliers; therefore suppliers do not need to prove this again.

10. Common Test Scenarios (CTSs) will be made available for UIT testing that are expected to be used for User Entry Process Testing.
11. Suppliers have the responsibility to draft test scripts from the CTSs and if SMDA are delivering test specifications from the CTSs to deliver SMDA, there is an opportunity to use the test specifications as common collateral for supplier test scripts for UIT/Use Entry Processes.

### *SMDA DCC Interoperability Testing – Proposed Supplier Licence Condition*

What is the purpose of this testing?

12. The DECC Equipment Testing Consultation Response proposes a Licence Condition on energy suppliers that will make them responsible for testing the interoperability of the metering equipment that they choose to enrol with the DCC.
13. Provide evidence that suppliers' equipment is compliant with the proposed Licence Condition and check that instructions between devices are interoperable with the DCC.
14. Typically devices will be checked for interoperability between the following:
  - DCC to Communications hub
  - Communications hub to ESME
  - ESME to IHD
  - Communications hub to GSME

How do we expect to develop the test specifications?

15. The DCC is contractually obliged to develop CTS 6 months in advance of UIT starting. The DCC will work with participants and notably suppliers in the development of these.
16. The CTSs will be developed using the GBCS, DUGIS and SMETS.
17. The CTSs along with the GBCS use cases will be used to develop the test specifications for device interoperability and can be used by suppliers on an individual basis, or via the SMDA scheme.
18. There are approximately 120 use cases that have been developed by the Programme and 10 complete use cases will be made available by the Programme by the end of 2013.
19. There is an expectation from the SMDA Working Group that testing against these use cases will enable suppliers to meet their Licence Condition obligations.

### *SMDA Functional Testing*

What is the purpose of this testing?

20. Suppliers are obliged to install SMETS compliant equipment. This testing will provide assurance that whilst the supplier has proved messages have been sent and received by equipment, the SMETS functional element is also proven.
21. This may involve visibly checking the meter or IHD to ensure the request has been executed as expected.

How do we expect to develop the test specifications?

22. We expect the interoperable test scripts to be used as a baseline for functional testing.
23. The functional specs could either be included as an additional element to the interoperability test or be a separate specification which references the interoperability test.
24. The functional spec requirements will be identified by reviewing the interoperability tests specs and identifying those areas where there is a functional impact. These will need to be cross checked against the appropriate design specifications to understand what the functional requirement is to be tested. This can then be included in the functional test specification.
25. The test specifications and can be used by suppliers on an individual basis, or via the SMDA scheme.

### *SMDA Interchangeability Testing*

What is the purpose of this testing?

26. The purpose of this testing is designed to reduce the stranded asset risk and to provide assurance that all equipment is interchangeable.
27. It was agreed that the Communications hub would be proven for its Interchangeability through the Interoperability testing as these will be interfacing with a number of devices. However, there is still further thinking required around what is a sensible number (and combination) of tests to cover all other devices listed in scope for Interchangeability testing.
28. Intimate Communications hubs should be considered a mainstream device, but there is still a question on whether they fall within the scope of this testing as a CSP provided device and not supplier provided.

29. HHTs might not be an issue as they won't connect in the same way as other smart devices. They will connect via ZigBee Interpan –which is a basic form of ZigBee that all smart devices should support. Inter-PAN is a lower-layer mechanism to send messages outside of the PAN and PAN security. I.e. The HHT is not joined to the PAN but acts as an untrusted carrier pigeon for the message.

What equipment is being tested?

30. We should seek to avoid testing all combinations of all devices or the testing will become overly onerous. However we will need to understand, probably with support from the Test Body, what level of combinations deliver us the required compliance.

31. Typically devices will be checked for interchangeability between the following:

- Communications hub to ESME
- ESME to IHD
- Communications hub to GSME

How do we expect to develop the test specifications?

32. We expect to use the test specifications that have been developed as part of the SMDA interoperable and functional tests, but run against different combinations of equipment. The number of variants to be tested is being considered as part of the RFI.

33. We expect the Scheme Operator to work with suppliers, manufacturers and financiers to determine the appropriate amount of Interchangeability tests and combination that are required to deliver the confidence needed.

34. It is widely acknowledged that there is significant effort required to develop the test specifications. However, it is currently not clear how much effort is required to develop these.

35. The SMDA Working Group believes there are a number of key areas that underpins interchangeability testing, these include; change of supplier; change of payment; change of tenancy and change of tariff. These are not exhaustive but are believed to be a minimum set to ensure devices are interchangeable.

36. As part of this work there is a requirement to identify a responsible party to develop the specifications for each of these three different sets of testing.

37. It was agreed in principle that we should define negative testing as part of our Interchangeability (and all) test specifications.

## *Common Approaches across SMDA Testing*

38. As part of the equipment being tested, consideration needs to be taken on their versions of firmware on smart metering equipment.

Equipment to be tested?

39. The SMETS2 equipment to be covered as part of this testing is:

- Electricity Smart Metering Equipment
- Gas Smart Metering Equipment
- Communications Hub (Inc. Gas Proxy Function and Intimate Communications Hub)
- IHD
- At a later stage –PPMID and ALCS (Inc. HCALCS), although as Type 1 devices these might be expected to be included
- Lowest priority – HHTs, depends on DCC plans for use of HHTs, CADs

What Test Environments are being used?

40. DECC and the DCC have confirmed that the Enduring Test environment would be available to suppliers for equipment testing.

41. We are working on the assumption that SMDA testing can be used appropriately by suppliers, the SMDA scheme operator and/or their test houses.

Who will deliver this Testing?

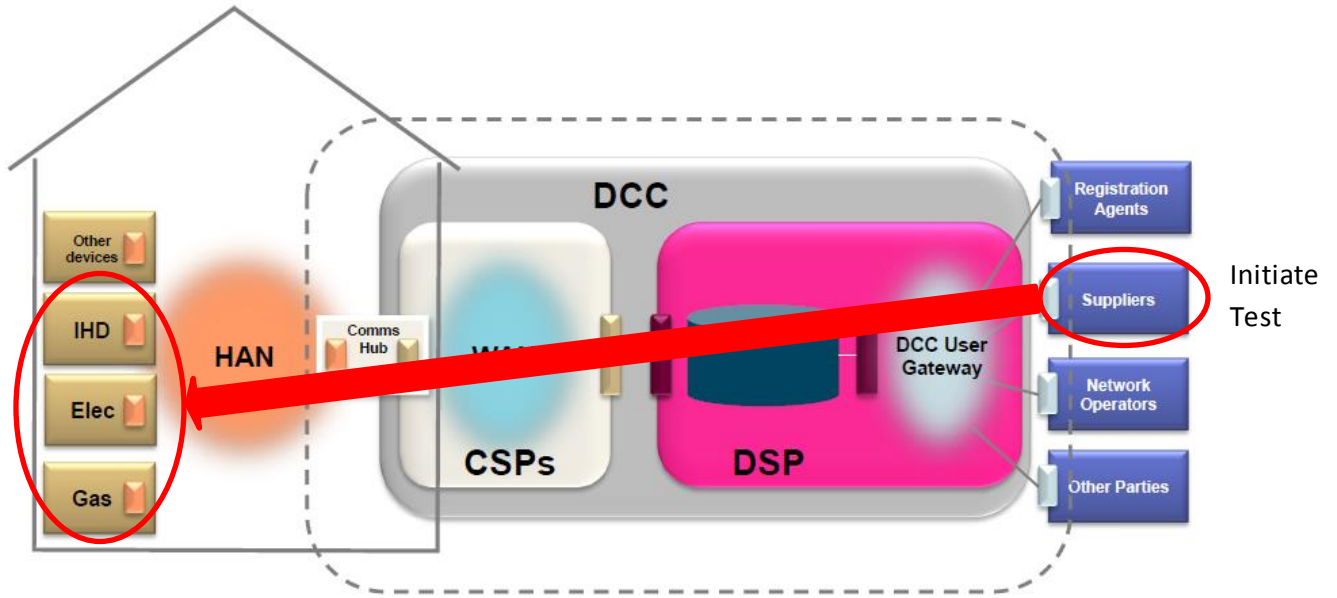
42. There are two options available to deliver this testing:

- a) Suppliers to initiate the request into the DCC systems which will pass through to the appropriate equipment in the DCC Enduring test environment.
- b) As suppliers have proved their interoperability with the DCC systems in User Entry Process Testing and therefore do not need a supplier specific gateway to test equipment DCC interoperability, the SMDA scheme can use a central test house/test environment for the gateway connecting to DUG

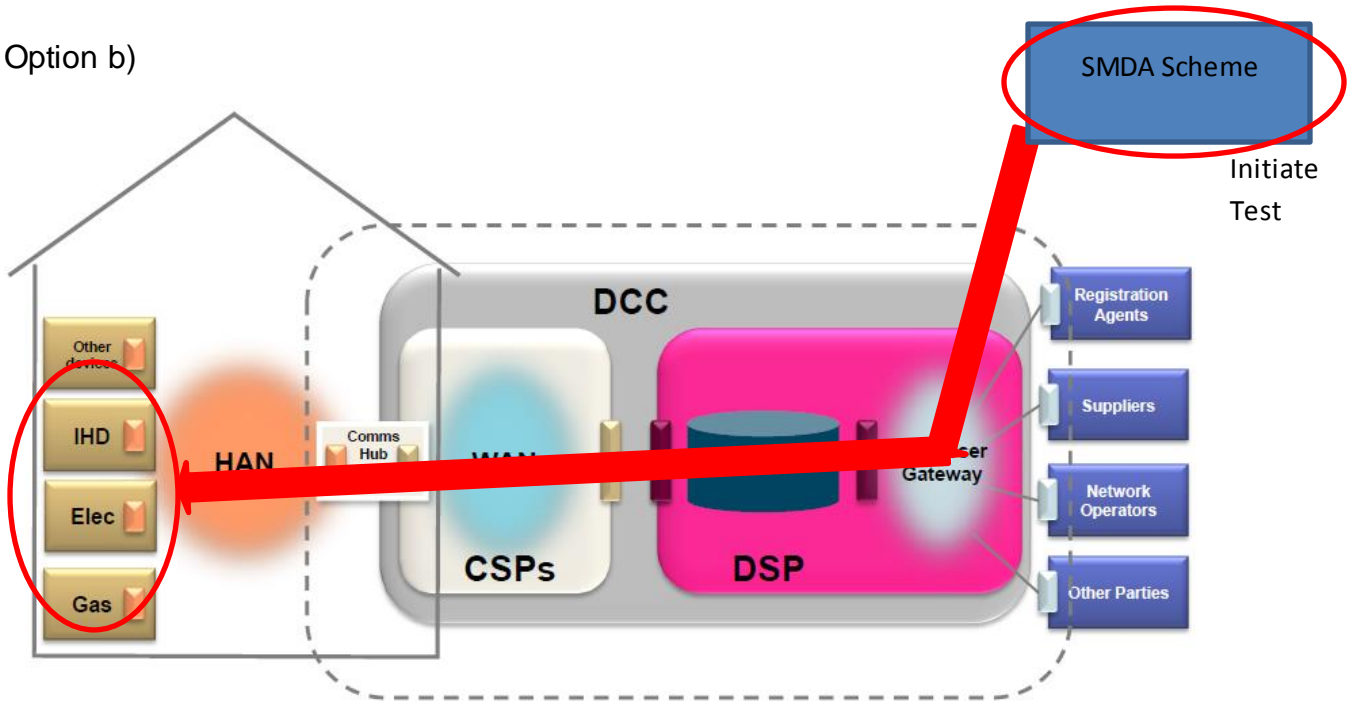
43. These options are shown below:

Option a)





Option b)



44. Option b) is preferred and expected to be the approach taken.

How will the Entry and Exit Criteria be developed?

45. The SMDA scheme operator will need to define the entry and exit criteria that are required for SMDA DCC Interoperability testing as part of its developments within its own governance.

How do we expect to develop the test specifications?

46. The DCC is contractually obliged to develop CTS 6 months in advance of UIT starting. The DCC will work with participants and notably suppliers in the development of these.
47. The CTSs will be developed using the GBCS, DUGIS and SMETS.
48. The CTSs will be used to develop the test specifications and can be used by suppliers on an individual basis, or via the SMDA scheme.
49. We expect the SMDA Scheme Operator to develop (or procure development) of the test specifications and for those to be signed-off within SMDA scheme operator governance.

How will the Entry and Exit Criteria be developed?

50. These criteria have been developed as part of the working group and we see this being reviewed and agreed with the test body on appointment.

Suggested Entry Criteria

51. Entry criteria must be non-discriminatory and the possible entry criteria into SMDA testing was agreed as the following:
  - SIT complete (pre-condition) and Stable DCC and Communications hub environment with all Communications hubs tested and available
  - CSPs to have completed their testing around the Communications Hub interface
  - All necessary equipment certification (e.g. MID, ROHS) complete
  - Equipment does not have to have protocol certification completed to enter this testing, however it was agreed by the working group that any product that has completed this certification should be given priority and there may be a requirement to re-test depending on issues that subsequent protocol certifications make apparent.
  - Similarly for CPA certification. It is expected that the test house / body will have to agree a set of criteria that determines who decides the priority of the equipment to be tested. In general, we would expect the products that are closer to the final / production product to receive priority. Similarly retesting may be required if changes become apparent to resolve CPA related issues.
  - The group also suggested that the body would need to agree conformance targets to ensure that companies who enter interchangeability testing and continually fail will be dealt with appropriately (e.g. should they have their testing suspended?). This is likely to require defined processes and criteria and the participant would need to complete/prove before the testing could be resumed.

52. It is assumed that the certified product list includes equipment and firmware versions. Policy discussions are still on-going around CPA and we need to monitor the final outcome of these discussions. There are also ongoing discussions on SMKI.

53. It was expected that a level of fees would be set for testing that drives appropriate behaviour (i.e. repeated failed tests are suitably costly). SMDA will work with the Scheme Operator in determining an acceptable level of testing within a given price.

#### Suggested Exit Criteria

54. It was agreed that it was important that the exit criteria has been scoped sufficiently to ensure all the interchangeability requirements are covered prior to exit.

55. The interchangeability testing exit criteria was agreed at the last working group meeting as the following:

- The final product should be representative to the equipment that suppliers will be deploying
- As part of any operational risk assessment it was agreed that the test house will be responsible for making the decision if regression testing or re-tests are required.

There is a need to ensure that changes to the baseline versions of the final Interchangeable certified product are captured and an evaluation criteria and process for ensuring the product still meets the compliance standards is required i.e. does it need re-certification? Including SMDA, there will be four separate test regimes CPA, ZigBee & DLMS and potentially further arrangements for SMKI. When a product is presented for re-evaluation to any of the schemes we need a mechanism to ensure others are aware.

#### Firmware Management

56. Firmware generally has been picked up in the Firmware Working Group and a couple of areas have been identified where the SMDA scheme may support firmware management:

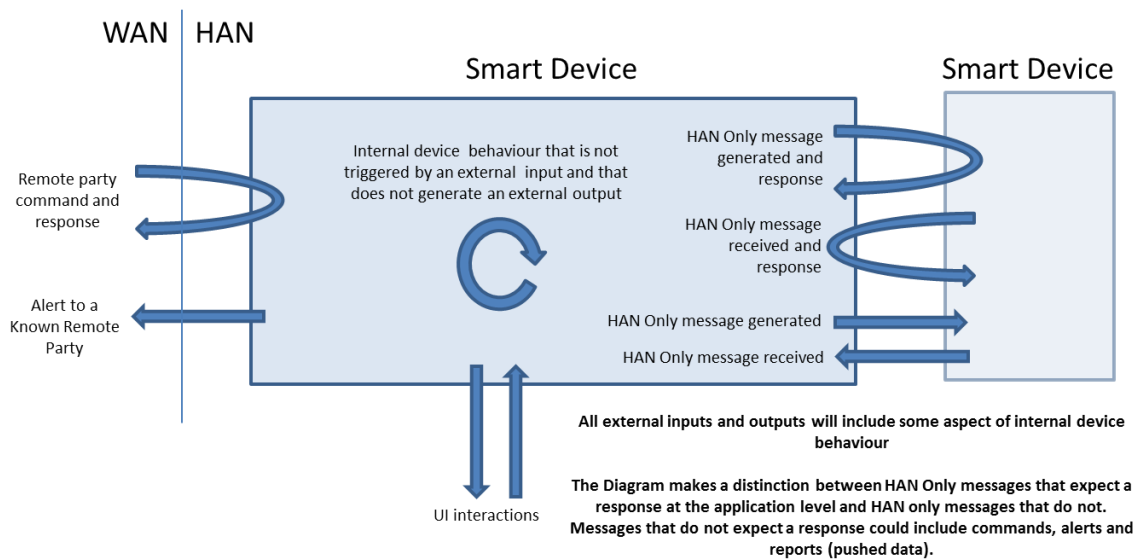
- Catalogue of versions – it has been suggested that should there be a new body setup to manage SMDA this catalogue could sit with them.
- Websites where the firmware updates can be downloaded by suppliers / DCC.

## Appendix A - Categorisation of Test Requirements

57. To aid in determining the scope of the functional compliance and DCC interoperability and to ensure full adherence to these requirements it is helpful to categorise the types of functionality that need to be tested.

58. By understanding these requirements we should be able to map these against the design baseline. This section sets out some areas by way of example.

Diagram 1. Scope of SMDA



59. Diagram 1 generically covers the interactions and behaviours that we may need to consider when defining the scope of testing for each smart device, noting that they will not all be relevant for each device type.

Using these categories we can then start to identify where the Messages/interactions are defined.

Category	Where is the Message/interaction defined?	Comments
Remote party command and response	DUGC/GBCS/Z SE 1.x/SSWG DLMS COSEM for the UK Interface Spec	Detail of test examples are not comprehensive but are included to highlight areas of consideration.  It may be possible to extend the DCC Interoperability test specifications to include the functional aspects defined in SMETS.  Example: Test the correct application of requirements defined in SMETS §5.6.3.29 Set Payment Mode (ESME).  GBCS UC ECS02 & 03 Set ESME Payment Mode to Credit or Prepayment details the DLMS commands and responses required to support the change of payment mode but not

		<p>the functional behaviour of the device.</p> <p>The equivalent ZigBee use cases for gas are covered by GBCS UC GCS02 &amp; 03 Set GSME Payment Mode to Credit or Prepayment.</p> <p>SMETS §4.5.3.21 Set Payment Mode details the SMETS interface requirements for the GSME.</p>
Alert to a Known Remote party	DUGC/GBCS/ZE 1.x/SSWG DLMS COSEM for the UK Interface Spec	<p>Example: Test the correct application of requirements defined in SMETS §5.4 Tamper alert on Unauthorised Physical Access.</p> <p>Tests would need to include verification of;</p> <ul style="list-style-type: none"> <li>• logging of the event in Security Log;</li> <li>• an Alert to the supplier and;</li> <li>• Disabling of supply when the Supply Tamper State requires it and retention of the current Supply State when the Supply Tamper State does not require disabling.</li> </ul>
Internal device behaviour that does not generate an external output	N/A (no message but device behaviour will be defined in SMETS)	<p>Example: Test the correct application of requirements defined in SMETS §5.5.8.2 Block switching in a ToU with Block tariff.</p> <p>Although there are no messages directly associated with this functionality the setup of this internal device behaviour will be the result of a series of messages and correct operation could be determined by querying the operational data on the meter.</p>
UI interactions	SMETS	<p>Example: Test the correct application of requirements defined in SMETS §5.6.2.1 ESME UI Command to Activate Emergency Credit.</p> <p>Several different test scenarios will be required to validate the correct enabling of the supply from different starting states.</p> <p>No messages are generated by the device but correct function could be determined by querying the operational data of the meter at several points during the testing process.</p>
HAN Only	GBCS/ZigBee	Example: Test the IHDs' request for data update from

message generated and response	ZSE 1.x	ESME and processing of response.  Detail on HAN Only information provision is missing from the GBCS UCs at present although the intention is for this detail to be included to a degree.
HAN Only message received and response	GBCS/ZigBee ZSE 1.x	Example: Test the ESME receiving and responding to data update request from the IHD.  Clearly this would be combined with the example above in the wider E2E test scenarios.
HAN Only message generated	GBCS/ZigBee ZSE 1.x	As mentioned above Detail on HAN Only messages is missing from the GBCS UCs at present.
HAN Only message received	GBCS/ZigBee ZSE 1.x	As mentioned above Detail on HAN Only messages is missing from the GBCS UCs at present.

60. The high level functional behaviour in relation to these categories will be defined in SMETS, although the detail may not be. Ideally the pre and post conditions surrounding a message will be defined in the GBCS however at present they are defined to a limited degree.

61. In all cases the device behaviour must be validated as well as the apparent response. E.g. if the ESME responds to say it has closed the switch has it actually closed the switch?

62. We need to consider internal device behaviours, not all SMETS requirements will be captured if we only look at events that generate or are triggered by a message/alert, For example switching of Block Counters when a ToU with Block tariff is configured on the ESME.

63. It is unclear at present what form the HAN only messages defined in the GBCS will take, the focus so far has concentrated on Remote Party messages.

64. HAN only messages may be classified as critical if they are between type 1 devices, for example a UTRN update from the PPMID to ESME.

65. We also need to consider the list of valid Alerts that can be sent from Smart devices deployed in the premises to Known Remote Parties and if alerts can be sent to other devices on the HAN.

66. Certain test sets will require a test bench capable to create various load conditions on the meter, for example to test Network Alerts generated by the ESME. A gas equivalent will also be required.

### *End to End Testing*

67. As it will not be possible to test devices in isolation it would seem appropriate to define a series of E2E test requirements that allow a set of devices to be tested as part of a complete system. Bearing the categorisation structure described above in mind while the E2E test requirements are defined should help ensure that all relevant functional requirements for a device are met.

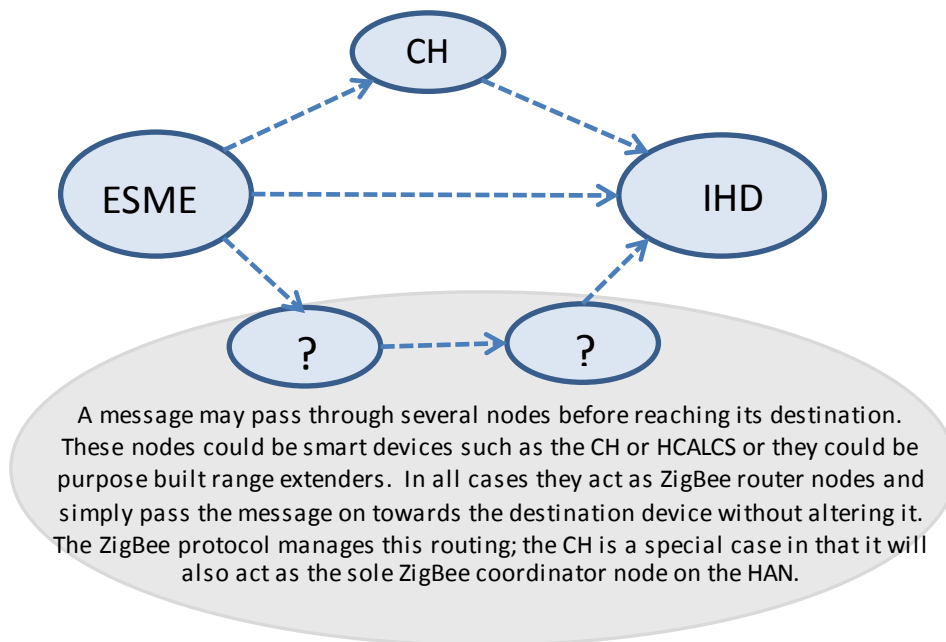
68. While this paper does not cover how device sets should be chosen to prove the interchangeability of a device it does in the following two sections detail some points that need to be considered when the method of device selection is determined.

### *ZigBee Message Routing*

69. The trust relationship for a message lies between the end devices and is independent of the route the message takes between these devices. In diagram 2 for example the trust relationship for an update of Historic Consumption Data would be held between the IHD and the ESME.

*Diagram 2. Alternate paths for a message in ZigBee Mesh*

To aid clarity this example focuses on the relationship between the ESME and IHD.



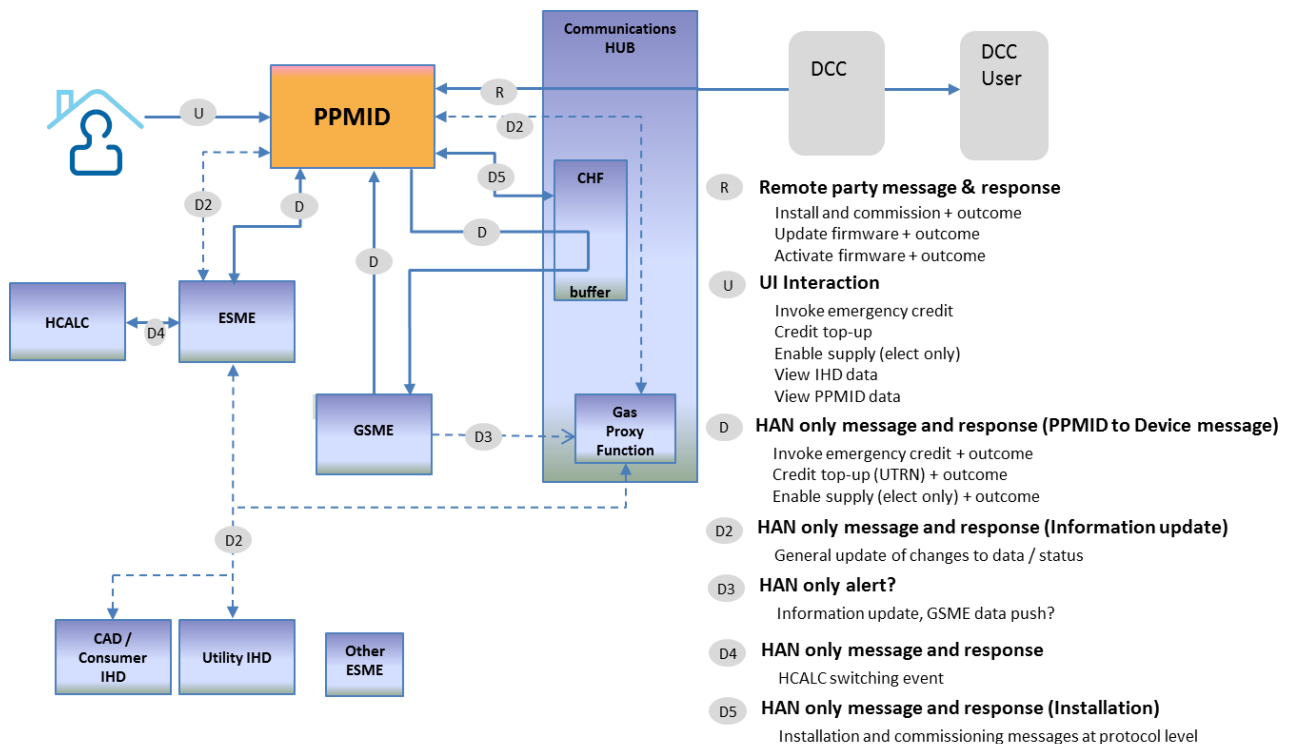
70. The route that the Historic Consumption Data update message takes to get from the ESME to the IHD should not alter the format or content of the message, if it does the message will fail authentication at the IHD. To prove interchangeability between IHDs and ESMEs in this respect we need to test that IHD/ESME pairs will interpret and respond correctly to update messages passing back and forth.

### *Device associations*

71. Different areas of testing may involve different sets of devices. For example;

- to test interchangeability in relation to installation and commissioning related Remote Party Messages to the ESME, we will need to test against different CH and ESME combinations;
- but to test HAN only messages we may be able to reduce the number of test combinations by first proving that all CH's correctly support the coordination of HAN Only messages, then use a single CH to act as the ZigBee coordinator node while testing that different combinations of IHD and ESME will interpret and respond correctly to the full message set that covers their interactions.

Diagram 3. Application Layer view of PPMID E2E interactions



72. As an example, diagram 3 shows the primary messages initiated and received by the PPMID together with messages that consequently passed between devices in the E2E system.

73. The underlying protocols will determine to some degree the device sets that need to be tested against each other and the scope of testing that will be required.

- The DUGIS determines the valid set of Remote Party Messages that can be tested.
- The scope of tests required for HAN Only Messages will be determined by the valid commands and data items supported by the underlying protocols.
- Does the CHF simply buffer all messages from the PPMID to the GSME, leaving the message entirely unaltered or does the CH play a more active role in the handling of some message types?



74. Dependent on the ZigBee functional cluster required to support the message the CH as the ZigBee ESI may take a more active role in the enactment of the functionality related to the gas supply.

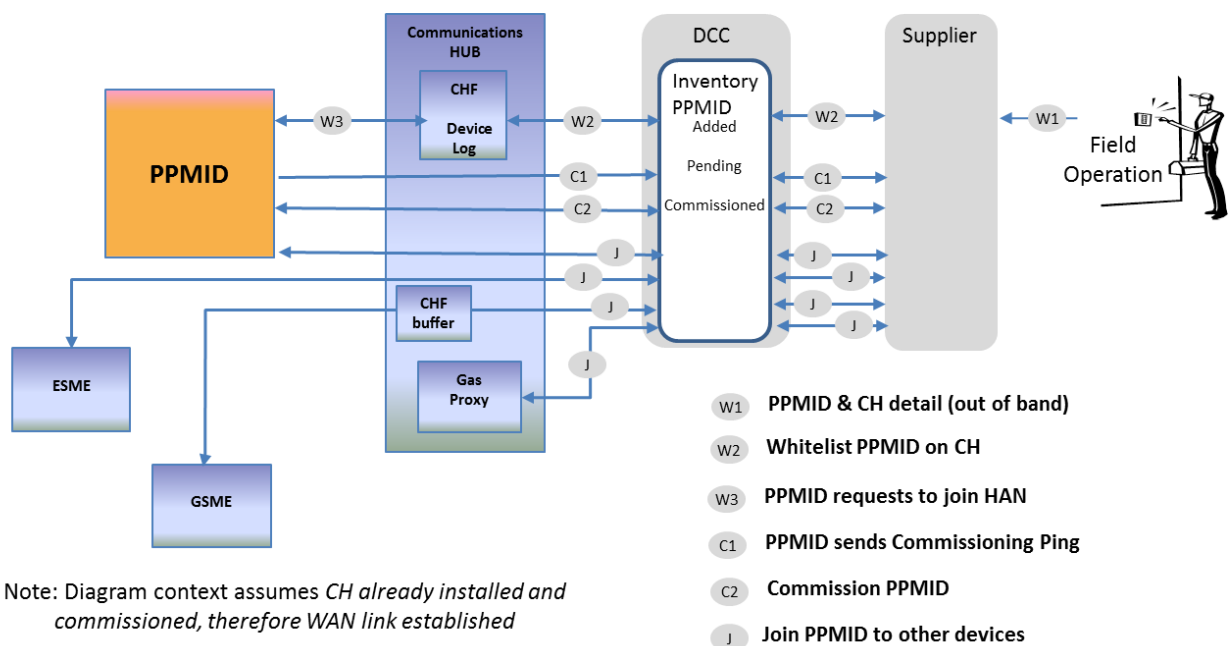
- Does the GSME push data to the GPF when it wakes up or does it announce that it is awake following which the GPF requests an update (D3)?

75. The GBCS in conjunction with ZSE 1.x should answer these questions once all the use cases are complete.

- During commissioning messages are passed between the PPMID and CH (link D5), messages are also passed to the PPMID from Remote Third Parties (the supplier) via the CH unaltered (link R). Diagram 4 highlight these interactions in more detail.

76. It can be seen from this example that the Communications Hub takes both an active role and passive role (i.e. as a message carrier between the PPMID and DCC) at different stages in the commissioning process.

Diagram 4. Installation and Commissioning of a PPMID



77. It would be beneficial to invite comment and input from a ZigBee expert that fully understands the protocol to help determine the scope and form of testing to be specified by the requirements workstream.

78. If Interchangeability testing is to be an extension of the defined Functional and Interoperability testing, analysis of each separate use case will be required to determine which devices takes an active role in the process as opposed to those being simply a passive message carrier.

## Appendix B - Common Test Scenarios

79. A suggested framework for the CTSs has been presented by DECC and this will now need to be developed by DCC with industry
80. DECC have advised that SMETS, GBCS and DUGC provide the baseline design documentation and that GBCS use cases define end to end processes with pre/post conditions, messages and responses. GBCS Use Cases should form the starting point for definition of E2E type testing. These are also locked together in the traceability matrix to ensure consistency.
81. CTSs will need to reflect the baseline documentation and the group would like to see the CTSs drip-fed so that they can be considered on an “as and when available” basis. These will be developed at the DCC CTS Test Design forum and won't be common knowledge until they have been approved by the SEC Panel in September 2014; therefore there is a risk that the scheme operator may have to wait until September 2014 for the full set of CTSs.
82. There is a thought around the development requirements for the Common Test Scenarios (CTSs) and whilst the DCC are obliged to have these ready 6 months prior to UIT testing (UIT Starts April 2015, so CTS are needed by October 2014) we will need these in advance of this date to allow the detail test specifications to be written as part of interchangeability testing. We would expect that once the draft CTSs have been written parallel working is required to develop the detailed test specifications, otherwise these will not be completed in time to undertake any meaningful interchangeability testing prior to roll-out.
83. The CTS should allow a prospective DCC User to test their compliance with the DCC service. Successful execution of the CTS will form part of the User Entry Process Requirements as set out in the Smart Energy Code (SEC) and is an essential stage in becoming a DCC Service User.
84. The complete set of CTSs need to provide sufficient information to provide a clear understanding of the testing requirements and coverage, but will still require the respective DCC Service User to define and create individual test specifications, in accordance to their individual needs. Prospective DCC Service Users will be required to demonstrate, through the use of a Requirements Traceability Matrix (RTM), how their User Entry Test cases map against the CTS such that full coverage of the CTS can be established.
85. The DUGC consists of approximately 81 Service requests for example ‘1.1 Update Import Tariff Service Request’. The CTS is currently defined to contain 15 high level functional areas as shown in the table below. Each functional area may have sub groups for example, table item 11 ‘Consumer initiated requests’ covers 5 areas including Tariff Price changes, Fault diagnostics & Reset privacy PIN. Each functional area and sub groups then have a series of test scenarios that meet the various business process requirements. Each test scenario utilises a combination of DUGC service requests required to carry out the test scenario.

It should be noted that the CTS process mentioned is currently a template with only the 'Installation & Commission' defined as an example. Energy suppliers are expected to engage with the DCC to provide a complete set as current business processes could change in DCC design.

*Current list of common functional areas*

	Functional area	Descriptors/Comments
1	Installation & Commission	Initial draft completed subject to change by DCC
2	Access & device security	The Access & Device Security category lists all common scenarios that are associated with the control of access and security credentials placed on in-home equipment.
3	Device Configuration settings	The Device Configuration Settings category lists all common scenarios that are associated with supplier specific configuration that is placed upon the in-home equipment.
4	Change of Supplier - COS	The Change of Supplier category lists all common scenarios that are associated with the process of removing the losing supplier's service to a given property and establishing the winning supplier's service to the same address. These scenarios will also include the winning supplier applying both supplier and consumer specific configuration to the in-home equipment.
5	Change of Tenancy - COT	The Change of Tenancy category lists all common scenarios that are associated with the process of moving out the previous consumer from a given property and configuring all in-home equipment for the moving in consumer, whilst retaining privacy around historic data use and access.
6	Communication & Device Management	The Communication & Device Management category lists all common scenarios that are associated with the confirmation of on-site device connectivity via the Home Area Network (HAN), as well as with the central DCC service.
7	DCC Service Management	The DCC Service Management category lists all common scenarios that are associated with the live incident management operations including the Incident Management process via a Self Service Interface, DCC service status and alerting, WAN coverage and outages, Communications Hub ordering and delivery tracking process, and current and future communication coverage searchable by

		postcode and district codes.
<b>8</b>	Device removal & exchange	The Device Removal & Exchange category lists all common scenarios that are associated with the physical removal or exchange of any in-home equipment.
<b>9</b>	Fault & Alert Management	The Fault & Alert Management category lists all common scenarios that are associated with the monitoring and configuration of in-home equipment alert and event behaviour.
<b>10</b>	Firmware Management	The Firmware Management category lists all common scenarios that are associated with the management and installation of device specific firmware.
<b>11</b>	Consumer Initiated requests	The Consumer Initiated Requests category lists all common scenarios that are regularly instigated by consumers calling the energy suppliers' Customer Services team and raising queries or requests that result in changes being made to the in-home equipment configuration.
<b>12</b>	Prepayment Operations	The Prepayment Operations category lists all common scenarios that are specifically associated with the configuration and regular activities performed on consumers' prepayment in-home equipment. These will also include the necessary changes to enable the equipment to switch between payment modes
<b>13</b>	Read Management	The Read Management category lists all common scenarios that are associated with the retrieval of data usage and device configuration information from all in-home equipment
<b>14</b>	Schedule Management	The Schedule Management category lists all common scenarios that are associated with the creation, management and deletion of any regular and automated based actions.
<b>15</b>	Supply Management	The Supply Management category lists all common scenarios that are associated with the management and control of energy supply made available within the consumers' premises.

## Appendix C - Definition of Collateral Products

86. As part of the SMDA there are a set of testing products that need to be identified and delivered to ensure equipment is interchangeable. These have been identified as:

- a. Set of Common Test Scenarios – we are assuming that these scenarios (based on seeing the install and commission scenarios) will be the basis to set the detail test against.
  - These are the responsibility of the DCC and they are obliged to have these ready 6 months prior to UIT testing (UIT Starts March 2015, so CTS are needed by Sep 2014).
  - We will need these in advance of this date to allow the detail test specifications to be written as part of interchangeability testing.
  - We would expect that as the draft CTSs will be written parallel working is required to develop the detailed test specifications, otherwise these will not be completed in time to undertake any meaningful interchangeability testing prior to roll-out.
  
- b. A complete set of technical specifications - these will be used to develop the detailed test specifications against. These include:
  - GB Companion Specs (GBCS) – including ZSE1.x DLMS and COSEM
  - Communications Hub Technical Spec (CHTS)
  - CAD – Consumer Access Device (will also feature in CHTS)
  - Electricity Smart Metering Equipment (ESME) (SMETS)
  - Gas Smart Metering Equipment (GSME) (SMETS)
  - Intimate Communications Hub Interface Specs (ICHIS)
  - IHD Spec (SMETS)
  - PPMIDs (SMETS)
  - HAN Connected Auxiliary Load Control Switch (HCALCS) (SMETS)
  - Hand Held Terminal (HHTs)
  - DCC User Gateway Interface Specification (DUGIS)
  - DCC Service Catalogue
  - Interface Spec (being produced by DCC by year end 2013)
  
- c. A testing plan developed by the SMDA working group to include:
  - The test approach
  - Testing governance
  - Quality plan
  - Scheduling Criteria
  - Evidence Criteria
  - Incident Management
  - Sign off Process
  - Appeals Process

## Appendix B – RAID Log

### Risks

ID.	Cause	Impact	Date Raised	Raised by	RAG Status / Severity	Mitigation Strategy	Date of last Review	Action Update	Action Owner
R1	The DCC test environments may not be able to be used in other non-DCC models?	May constrain options	7/10/13	WG 7/10/13		Communication with DCC on use of test environments	16/12/13	In dialogue, but currently believe that Enduring test environment can be used, as stated in assumptions	JB
R2	What will happen for firmware upgrades to comms hubs that are not in the control of suppliers?		7/10/13	WG 7/10/13					
R3	Scope of testing too large to develop and execute in time	May not deliver on time	7/10/13	WG 7/10/13		Opportunity to phase test implementation		RFI respondents to consider	
R4	CTSs and detailed scripts in time not developed in time	Test specifications delayed	7/10/13	WG 7/10/13		Liaison with DCC/DECC  Need phased delivery as and when available			

R5	All technical specs haven't been agreed	Baseline uncertain	7/10/13	WG 7/10/13		Contribute through design forums			
R6	How to engage small suppliers and ensure that the scheme is used by all organisations installing and operating SMETS2 meters.	May not be as universally applied as desired	21/10	Project		All suppliers invited to communications event  Keep all suppliers informed and engaged			

## Issues

ID.	Date Raised	Originator	Owner	Issue Description	Severity	Date of last Review	Action History	Action Owner
I1	071013	WG 071013		Should we be testing against golden units?				
I2	071013	WG 071013		What will happen for firmware upgrades to comms hubs that are not in the control of suppliers?				
I3	071013	WG 071013		How many combinations do we need to test against?				
I4	071013	WG 071013		Can we deliver Functional & DCC Interoperability Testing first with interchangeability testing to follow?				

I5	211013	WG 211013		Include a consideration to test the gas mirror in the comms hub to the issue log.				
I6	161213	JB		If we have a single set of test scripts and a single test environment will it be made possible to enable multiple test houses to run testing in parallel?				
I7	161213	WG 221113	SE	Can E2E/enduring test environment be used by suppliers or SMDA test houses to execute and witness tests?				
I8	161213	WG 221113	CH	Consider the security and parse and correlate assurance requirements – how do we replicate the security model in SMDA testing?				
I9	161213	WG 221113	CH	Map out a roadmap/storybook for what happens to assets through testing (e.g. those through UIT; those not)				
I10	161213	WG 221113	CH / JB	Consider how a disputes and appeals process will work for the 3 areas of testing within SMDA.				
I11	161213	WG 221113	JC	Speak with DECC to understand how the gaps in the GBCS will be picked up				
I12	161213	WG 221113	CH	Convene a sub group of SDAF and SMDA attendees to get together to get an understanding how we develop a		161213	Agreed with subgroup a suggested development	



				prototype test spec.			approach to include in RFI	
I13	161213	JB	JB	If SMDA test houses to use DCC Enduring test environment, will this be on behalf of suppliers with an execution schedule agreed with DCC and with costs to form part of existing contract provisions for suppliers to execute their own tests with production equipment within the enduring test environment?				

### Assumptions

ID.	Date Raised	Originator	Owner	Assumption Description	Date of last Review	Action History	Action Owner
A1				The purpose of the SMDA Test House would not be to provide evidence which forms part of the certification for a new Service User to join the DCC Service; it is to test equipment is compliant with SMETS2 specifications, interoperable and interchangeable.			
A2				The enduring test environment at DCC is available to test SMETS2 metering			

				equipment.			
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### Dependencies

ID.	Date Raised	Originator	Owner	Dependency Description	Date of last Review	Action History	Action Owner
D1	16/12/13	JB	JB	Dependent on completion of DECC/DCC design documents and CTSs to derive test specifications			