



Department
of Energy &
Climate Change

Smart Meters Programme Schedule 11

(Communications Hub) (CSP South version)

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Amendment History		
Version	Date	Status
v.1	Signature Date	Execution Copy

SCHEDULE 11 COMMUNICATIONS HUB

OVERVIEW

This Schedule 11 (Communications Hub) sets out the terms governing the design, manufacturing, supply and disposal of Communications Hubs by the Contractor.

The installation, operation and maintenance of Communications Hubs are governed by the other provisions of this Agreement, including (in particular) the provisions referred to in paragraph 39 of this Schedule 11.

This Schedule 11 comprises the following parts:

Part	Scope
Part A	General
Part B	Development of Communications Hub Documents
Part C	Certification and testing of Communications Hubs
Part D	Forecasting and ordering
Part E	Manufacturing of Communications Hubs
Part F	Delivery of Communications Hubs
Part G	Installation, operation and maintenance
Part H	Faults and returns
Part I	Reconditioning, disposal and product safety
Part J	Warranties, indemnities and liability
Part K	Termination and exit
Part L	Miscellaneous

Appendices to this Schedule 11

This Schedule 11 includes the following appendices (adopting the numbering of the equivalent Schedules to this Agreement) which set out specific provisions relating to the design, manufacturing, supply and disposal of Communications Hubs:

Appendix	Scope
1	Definitions
2.1	DCC Requirements <i>Annex A: Not used</i> <i>Annex B: Not used</i> <i>Annex C: ICHIS requirements</i> <i>Annex D: Communications Hub Interface Commands</i>

Appendix	Scope
2.2	Performance Measures
4.1	Contractor Solution
5.1	Intellectual Property Rights

Appendices not used in this Schedule 11

The parties acknowledge and agree that the following appendices are not used in this Schedule 11 and that all relevant requirements are addressed in the equivalent Schedule of this Agreement (which shall apply to this Schedule 11 in accordance with paragraph 1.2 of Part A of this Schedule 11):

Appendix/ Schedule	Scope
2.3	Standards
2.4	Continuous Improvement
2.5	Security Requirements
2.6	Insurance
2.7	Catalogue Services
3	DCC Responsibilities
4.2	Technical Infrastructure
4.3	Sub-Contractors
5.2	Software
5.3	Escrow
6.1	Implementation Planning
6.2	Testing and Acceptance
6.3	Development Process
6.4	Foundation Meters
7.1	Charges and Payment
7.2	Payments on Termination
7.3	Value for Money
7.4	Financial Distress
8.1	Governance

Appendix/ Schedule	Scope
8.2	Change Control
8.3	Dispute Resolution Procedure
8.4	Records and Audit Provisions
8.5	Exit
8.6	Business Continuity and Disaster Recovery Plan
8.7	Co-operation
8.8	Projects
8.9	Operations Manual
8.10	Enhanced Scrutiny and Step-in
9.1	TUPE
9.2	Personnel and Key Personnel

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PART A – GENERAL

1. RELATIONSHIP WITH AGREEMENT

1.1 The design, manufacturing, supply and disposal of Communications Hubs by the Contractor in accordance with this Schedule 11 is a separate Work Package for the purposes of this Agreement, including Clause 60.9 (Partial Termination).

1.2 Notwithstanding paragraph 1.1:

1.2.1 the design, manufacturing, supply and disposal of Communications Hubs by the Contractor under this Schedule 11 form part of the Services to be provided by the Contractor under this Agreement;

1.2.2 the Communications Hubs to be supplied by the Contractor under this Schedule 11 form part of the Contractor System;

1.2.3 except as specified in paragraph 2, the Contractor shall comply with its obligations under this Agreement as a whole in relation to the design, manufacturing, supply and disposal of Communications Hubs under this Schedule 11; and

1.2.4 except as specified in paragraph 2 (or elsewhere in this Schedule 11), the rights and obligations of the parties under this Schedule 11 shall be without prejudice to the parties' other rights and obligations under this Agreement.

1.3 The parties acknowledge and agree that:

1.3.1 in accordance with Clause 26.1.2 of this Agreement, the Communications Hubs shall be used by the Contractor solely for the purpose of providing the Services to the DCC and shall not be used for the Contractor's own purposes or in providing any other services of any nature to any person except as agreed by the DCC in writing; and

1.3.2 the Communications Hubs shall be Relevant Assets for the purposes of Part D of Schedule 7.3 (Value for Money).

1.4 Without limiting the Contractor's other obligations under this Schedule 11 and this Agreement generally, the Contractor shall implement appropriate security controls to address known vulnerabilities in relation to each stage of the design, manufacturing, supply and disposal of Communications Hubs.

2. EXCLUDED PROVISIONS

2.1 Without limiting the Contractor's obligations under this Schedule 11, the parties acknowledge and agree that the following provisions of this Agreement shall either:

2.1.1 not apply to the design, manufacturing, supply and disposal of Communications Hubs by the Contractor under this Schedule 11; or

2.1.2 apply to the design, manufacturing, supply and disposal of Communications Hubs by the Contractor under this Schedule 11 in the amended form set out in the table below.

Provision	Scope	Amended version for Schedule 11
Clause 51.3.9	Contractor warranties	<p>Clause 51.3.9 shall not apply in relation to the Communications Hubs. The parties acknowledge that:</p> <ul style="list-style-type: none"> • the Contractor's warranty in respect of non-encumbrance of the Communications Hubs shall be as set out in paragraph 49.3 of Part J of this Schedule 11; • the Contractor's warranty in respect of date compliance shall be as set out in paragraph 49.1.6 of Part J of this Schedule 11; and • a warranty regarding Euro compliance is not applicable in respect of the Communications Hubs.
Clause 52.9	Physical damage indemnity	<p>Clause 52.9 shall not apply in relation to the Communications Hubs. The parties acknowledge that the indemnity in paragraph 50.1 of Part J of this Schedule 11 shall apply instead.</p>

3. **DEFINITIONS AND INTERPRETATION**

- 3.1 The definitions specifically applicable to this Schedule 11 are set out in Appendix 1 (Definitions – Communications Hubs).
- 3.2 Otherwise, the definitions and rules of interpretation set out in Schedule 1 (Interpretation and Definitions) shall apply to this Schedule 11.
- 3.3 If there is any conflict between any of the paragraphs of Part A (General) to Part L (Miscellaneous) of this Schedule 11 and the Appendices or Annexes to this Schedule 11, the conflict shall be resolved in accordance with the following order of precedence:
- 3.3.1 the paragraphs of Part A (General) to Part L (Miscellaneous) of this Schedule 11;
- 3.3.2 the Appendices and Annexes of this Schedule 11 (except for Appendix 4.1); and
- 3.3.3 Appendix 4.1 of this Schedule 11.

PART B – DEVELOPMENT OF COMMUNICATIONS HUB DOCUMENTS

4. PREPARATION OF COMMUNICATIONS HUB DOCUMENTS

Scope

4.1 This Part B addresses the preparation by the Contractor, and the review by the DCC, of:

4.1.1 the Intimate Communications Hub Interface Specification (ICHIS);

4.1.2 the Communications Hub Detailed Specification (CHDS); and

4.1.3 the Communications Hub Handover Support Materials (CHHSM).

Development process

4.2 Each of the documents referred to in paragraph 4.1 shall form part of the "Communications Hub Documents" to be developed by the Contractor in accordance with:

4.2.1 the process set out in Schedule 6.3 (Development Process);

4.2.2 in relation to the ICHIS only, the Co-operation Agreement between the Contractor and the other Prime CSP;

4.2.3 the timescales, and other relevant requirements, set out in the Implementation Plan and the Associated Plans; and

4.2.4 the applicable requirements of this Agreement, including under Section C (Design and Implementation and Testing Services).

4.3 The Contractor acknowledges that the development of the Communications Hub Documents will be an iterative process, including as a result of the process regarding the finalisation of the relevant SEC Subsidiary Documents following the Signature Date. This iterative development process is further described in Parts C, D and E of Schedule 6.3.

4.4 This Part B sets out:

4.4.1 the specific arrangements regarding the development process for the ICHIS (paragraph 5);

4.4.2 certain specific Applicable Content Requirements, as defined in Schedule 6.3, in relation to each of the ICHIS (paragraph 6), the CHDS (paragraph 7) and the CHHSM (paragraph 8); and

4.4.3 arrangements relating to subsequent amendments to the CHDS (paragraph 9).

5. **SPECIFIC DEVELOPMENT PROCESS FOR ICHIS**

DCC's obligations

- 5.1 The Contractor acknowledges that, pursuant to the SEC, the DCC is required to develop the ICHIS and, in doing so, the DCC is required to:
- 5.1.1 ensure that the ICHIS complies with the requirements set out in Annex C of Appendix 2.1 of this Schedule 11;
 - 5.1.2 liaise and consult with the Contractor, the other Prime CSP, the DCC Service Users and other SEC Parties and other relevant stakeholders; and
 - 5.1.3 undertake sufficient prototype development and testing to ensure that the ICHIS is fit for purpose.
- 5.2 The Contractor acknowledges that, as part of the development of the ICHIS, the DCC is required to provide a report to Ofgem and/or the Secretary of State (the "**ICHIS Development Report**") setting out:
- 5.2.1 the process followed by the DCC to develop the ICHIS;
 - 5.2.2 estimates of the cost of developing, and equipment availability timelines for:
 - 5.2.2.1 Communications Hubs;
 - 5.2.2.2 intimate electricity Smart Meters; and
 - 5.2.2.3 "hot shoes",that comply with the ICHIS;
 - 5.2.3 where applicable, any areas of contention between the Contractor, the other Prime CSP, any DCC Service Users or other SEC Parties and/or other relevant stakeholders in relation to the development of the ICHIS;
 - 5.2.4 the rationale for the position taken in the ICHIS (taking account of the areas of contention referred to in paragraph 5.2.3); and
 - 5.2.5 evidence that sufficient prototype development and testing has been undertaken in relation to the ICHIS.

Contractor's obligations: Development of ICHIS

- 5.3 The Contractor shall develop the ICHIS on behalf of the DCC in conjunction with the other Prime CSP in accordance with Schedule 6.3 (Development Process), the Co-operation Agreement with the other Prime CSP and the requirements of this Part B.
- 5.4 In relation to the consultation requirements referred to in paragraph 5.1.2, the parties acknowledge that:

- 5.4.1 the Initial Product Description of the ICHIS (as set out in Appendix 7 to Schedule 6.3 (Development Process)) sets out the information and other assistance required by the Contractor from the relevant DCC Service Users, other SEC Parties and any other relevant stakeholders in order to develop the ICHIS; and
 - 5.4.2 Schedule 3 (DCC Responsibilities) sets out the DCC's obligations regarding procuring such information and assistance from the relevant persons referred to in paragraph 5.4.1.
- 5.5 The Contractor shall comply with any comments received from DCC Service Users, other SEC Parties and/or other relevant stakeholders in relation to the consultation requirements referred to in paragraph 5.1.2, except where the Contractor and/or the other Prime CSP (acting reasonably and in good faith) considers that such comments are:
- 5.5.1 inconsistent with any comments proposed by other DCC Service Users, SEC Parties and/or other relevant stakeholders; and/or
 - 5.5.2 not technically feasible, not cost-effective or otherwise impractical.

Where paragraph 5.5.1 or 5.5.2 applies, the Contractor shall notify the DCC accordingly, giving reasonable details of the relevant matters. Where paragraph 5.5.1 applies, the Contractor shall comply with any reasonable direction from the DCC.

Contractor's obligations: Prototype development and testing

- 5.6 In developing the ICHIS in accordance with paragraph 5.3, the Contractor shall undertake sufficient prototype development and testing to ensure that the ICHIS complies with the requirements referred to in this Part B. Further details of the testing regime to be conducted by the Contractor, including the provision of test results to the DCC, are set out in the Initial Product Description of the ICHIS.

Contractor's obligations: Supporting ICHIS Development Report

- 5.7 Without limiting the Contractor's other obligations under this Schedule 11, the Contractor shall:
- 5.7.1 promptly provide any co-operation, documentation, data, information or other assistance reasonably requested by the DCC from time to time in relation to the preparation of the ICHIS Development Report by the DCC, including information relating to estimates of the cost of developing, and equipment availability timelines for, Communications Hubs which comply with the ICHIS; and
 - 5.7.2 ensure that appropriate representatives of the Contractor (or, where applicable, any Contractor Person), including any representatives specifically identified by the DCC, attend any meetings with the DCC that are reasonably requested by the DCC from time to time in relation to the preparation of the ICHIS Development Report by the DCC.

6. APPLICABLE CONTENT REQUIREMENTS FOR ICHIS

The ICHIS shall comply with the following requirements:

ICHIS requirements	
1.	<p>The ICHIS shall contain a detailed description of the intimate interface between:</p> <p>(a) the Communications Hub (which shall incorporate the "male" components of the intimate interface); and</p> <p>(b) the electricity Smart Meter or the "hot shoe" (which shall incorporate the "female" components of the intimate interface),</p> <p>and shall ensure that the intimate interface complies with requirements of Annex C of Appendix 2.1 of this Schedule 11 and otherwise ensures that the intimate interface will interconnect in a robust and reliable manner.</p>
2.	<p>The ICHIS shall otherwise be consistent with, and comply with any applicable requirements specified in, the Communications Hub Requirements.</p>
3.	<p>The ICHIS shall otherwise be consistent with the applicable requirements of this Agreement.</p>

7. **APPLICABLE CONTENT REQUIREMENTS FOR CHDS**

The CHDS shall comply with the following requirements:

CHDS requirements	
1.	<p>The CHDS shall contain a detailed description of the design and functions of each Communications Hub Variant. In particular, the CHDS shall identify the following items in respect of each Communications Hub Variant:</p> <p>(a) hardware components;</p> <p>(b) logical architecture;</p> <p>(c) software (including firmware);</p> <p>(d) any necessary auxiliary equipment.</p>
2.	<p>The CHDS shall ensure that each Communications Hub Variant complies with the requirements of each of:</p> <p>(a) Appendix 2.1 (DCC Requirements – Communications Hubs);</p> <p>(b) the CHTS;</p> <p>(c) the GB Companion Specification; and</p> <p>(d) the ICHIS,</p> <p>(together, the "Communications Hub Specifications").</p>
3.	<p>The CHDS shall ensure that each Communications Hub Variant complies with all applicable Laws, Standards and Consents, including those referred to in Schedule 2.3 as applicable to the Communications Hubs (together, the "Communications Hub Laws/Standards").</p>
4.	<p>The CHDS shall contain a detailed description of the flexibility of the design of each Communications Hub Variant to accommodate changes to (i) HAN or SMWAN protocols, (ii) Service Requests and/or (iii) HAN Interface Commands, including by describing the scope and nature of such changes that could be implemented by:</p>

	(a) a firmware update or other remote process; or (b) a physical replacement of the Communications Hub only.
5.	The CHDS shall otherwise be consistent with, and comply with any applicable requirements specified in, the Communications Hub Requirements.
6.	The CHDS shall otherwise be consistent with the applicable requirements of this Agreement.
7.	The CHDS should clearly identify the manner in which the CHDS complies with the Communications Hub Requirements.

8. APPLICABLE CONTENT REQUIREMENTS FOR CHHSM

The CHHSM shall comply with the following requirements (which shall apply to WAN Variants in the same manner):

CHHSM requirements	
1.	The CHHSM shall set out a detailed description of the process for the delivery and handover of Communications Hubs by the Contractor to the relevant DCC Service Users, including the requirements set out in Part F of this Schedule 11.
2.	The CHHSM shall set out any storage conditions relating to the Communications Hub.
3.	The CHHSM shall set out details of: <ul style="list-style-type: none"> (a) the pallet size requirements for delivery; and (b) the number of Communications Hubs which can be included within a single pallet (including any differences relating to different Communication Hub Variants).
4.	The CHHSM shall include a detailed description of the Order Management System (as further described in paragraph 25 of Part D).
5.	The CHHSM shall include a detailed description of the Delivery Documentation (as further described in paragraph 35 of Part F).
6.	The CHHSM shall otherwise be consistent with, and comply with any applicable requirements specified in, the Communications Hub Requirements.
7.	The CHHSM shall otherwise be consistent with the applicable requirements of this Agreement.

9. CHANGES TO THE COMMUNICATIONS HUB REQUIREMENTS

9.1 If there is a change to any of the Communications Hub Requirements, the Contractor shall be required to amend the CHDS to reflect such change in accordance with this paragraph 9.

9.2 Any change to any of:

9.2.1 the Communications Hub Specifications will be deemed to be a Specific Change in Mandatory Requirements; and

9.2.2 the Communications Hub Laws/Standards will be deemed to be a General Change in Mandatory Requirements,

and, in each case, the parties shall comply with their respective obligations, and may exercise their respective rights, under Clause 53.

9.3 In assessing and agreeing any changes to the CHDS in accordance with the Change Control Procedure, the parties shall determine:

9.3.1 where appropriate, whether it is technically feasible (and cost-effective) to apply such changes in relation to any Communications Hubs which have already been delivered to DCC Service Users by a firmware update or other remote process;

9.3.2 where appropriate, whether it is technically feasible (and cost-effective) to apply such changes in relation to any Communications Hubs which have already been manufactured by the Contractor but not yet delivered to DCC Service Users; or

9.3.3 otherwise, when the relevant changes are to be applied in relation to Communications Hubs which have not yet been manufactured by the Contractor.

PART C – CERTIFICATION AND TESTING OF COMMUNICATIONS HUBS

10. SCOPE

10.1 This Part C addresses the following certification and testing activities:

10.1.1 verification that each Communications Hub Variant complies with the applicable Communications Hub Laws/Standards such that each Communications Hub Variant can comply with CE marking requirements (paragraph 11);

10.1.2 protocol and security certification of each Communications Hub Variant (paragraphs 12 to 19);

10.1.3 Pre-Integration and System Integration Testing in relation to each Communications Hub Variant (paragraph 20); and

10.1.4 User Integration Testing in relation to each Communications Hub Variant (paragraph 21).

11. CE MARKING REQUIREMENTS

11.1 Before submitting any Communications Hub Variant for certification in accordance with paragraphs 12 to 18, the Contractor shall:

11.1.1 ensure that the Communications Hub Variant complies with the Communications Hub Laws/Standards applicable to the CE marking process, as specified in Schedule 2.3 (Standards) (the "**CE Laws/Standards**"); and

11.1.2 comply with its obligations under paragraph 11.2.

11.2 The Contractor shall:

11.2.1 conduct (or, where required, procure that an independent notified body conducts) a conformity assessment of the Communications Hub Variant in accordance with the requirements of the applicable CE Laws/Standards;

11.2.2 prepare and maintain any technical documentation and/or risk assessments required by the applicable CE Laws/Standards;

11.2.3 issue any applicable EC Declaration of Conformity in accordance with the applicable CE Laws/Standards; and

11.2.4 affix a CE mark to the Communications Hub Variant in accordance with the applicable CE Laws/Standards.

12. DELIVERY OF PRODUCTION VERSIONS FOR CERTIFICATION

Following completion of the Contractor's obligations under paragraph 11, the Contractor shall provide such quantities of each Communications Hub Variant to the relevant Certification Body as is reasonably requested from time to time for the purposes of conducting Certification Assessments in accordance with paragraphs 13 to 19 of this Part C.

13. **PURPOSE OF CERTIFICATION ASSESSMENT**

13.1 The scope of the Certification Assessment process relates to the following certification activities:

13.1.1 **ZigBee Certification:** certification that the relevant Communications Hub Variant complies with the ZigBee requirements identified in the GB Companion Specification (as may be amended from time to time);

13.1.2 **DLMS/COSEM Certification:** certification that the relevant Communications Hub Variant complies with the DLMS/COSEM requirements identified in the GB Companion Specification (as may be amended from time to time); and

13.1.3 **Security Certification:** certification that the Communications Hub Variant complies with the applicable security characteristics for smart metering systems under the CESG Commercial Product Assurance (CPA) Scheme, as further described in the CHTS.

13.2 The Contractor acknowledges that the certification activities referred to in paragraph 13.1 may be conducted jointly or separately, as determined by the DCC (acting reasonably).

14. **APPOINTMENT OF CERTIFICATION BODIES**

14.1 Certification Assessments shall be conducted by:

14.1.1 in relation to any ZigBee SEP certification, an accredited member of the ZigBee Alliance;

14.1.2 in relation to any DLMS/COSEM certification, an accredited member of the DLMS User Association; and

14.1.3 in relation to any security certification, a CESG-approved test laboratory,

(each, a "**Certification Body**").

14.2 Where appropriate (as determined by the DCC, acting reasonably), a single Certification Body may be appointed to conduct all of the certification activities referred to in paragraph 13.1, provided that such Certification Body complies with each of the requirements in paragraphs 14.1.1 to 14.1.3.

14.3 Each Certification Body shall be appointed under a tripartite agreement between the Contractor, the Certification Body and the DCC on terms to be agreed by the parties (both acting reasonably and in good faith) which comply with the requirements of paragraphs 12 to 19 (the "**Certification Agreement**"). Any confidentiality arrangements under the Certification Agreement in favour of the Contractor shall not restrict the disclosure of information by the Certification Body to the DCC in relation to the conduct of the Certification Assessment.

15. **COSTS**

15.1 The costs and expenses of the Certification Body in relation to each Certification Assessment shall be borne by the Contractor.

15.2 Each party shall bear its own costs incurred in relation to each Certification Assessment.

16. **CERTIFICATION ASSESSMENT PLAN**

16.1 The Certification Agreement shall require the Certification Body to produce, and to send to each party for approval, a draft plan for the Certification Assessment (the "**Certification Assessment Plan**") within ten (10) Working Days after the date of signature of the Certification Agreement.

16.2 The Contractor shall promptly provide the Certification Body with any information or other materials reasonably requested by the Certification Body (including the CHDS) to enable the Certification Body to develop the Certification Assessment Plan.

16.3 The Certification Assessment Plan shall include:

16.3.1 a proposed timetable for the Certification Assessment;

16.3.2 a description of any information that the Certification Body requires the Contractor or the DCC to provide;

16.3.3 a description of the tools and methodology to be used by the Certification Body in carrying out the Certification Assessment; and

16.3.4 a description of how the Certification Assessment will demonstrate that the relevant Communications Hub Variant(s) complies with the applicable certification requirements referred to in paragraph 13.1.

16.4 The Contractor acknowledges that the Certification Assessment Plan may be subject to review and approval by or on behalf of the SEC Panel.

16.5 Each party shall notify the Certification Body and the other party following receipt of the draft Certification Assessment Plan from the Certification Body, advising:

16.5.1 whether it approves the draft Certification Assessment Plan; or

16.5.2 if it does not approve the draft Certification Assessment Plan, suggesting amendments to the Certification Assessment Plan.

The DCC's notice under this paragraph 16.5 shall include any comments or suggested amendments received from the SEC Panel under paragraph 16.4.

16.6 The notices referred to in paragraph 16.5 shall be provided within ten (10) Working Days after receipt of the draft Certification Assessment Plan from the Certification Body, excluding, in relation to a notice from the DCC, any time taken by the SEC Panel to provide comments or suggested amendments.

16.7 Neither party may unreasonably withhold its approval of the draft Certification Assessment Plan, and any suggested amendments must be

reasonable (provided that this paragraph 16.7 shall, in relation to the DCC, apply only to the DCC itself and not to the SEC Panel or any amendments provided by or on behalf of the SEC Panel).

16.8 Where either party suggests amendments to the draft Certification Assessment Plan under paragraph 16.5, the Certification Agreement shall require the Certification Body (subject to paragraph 16.9) to:

16.8.1 incorporate such amendments into the Certification Assessment Plan;
and

16.8.2 issue a final version of the Certification Assessment Plan,

as soon as reasonably practicable (but, in any event, within ten (10) Working Days after receipt of the parties' comments under paragraph 16.5, such period starting from receipt of the last set of comments from the parties).

16.9 The Certification Agreement shall require the Certification Body to notify the parties in writing (by no later than the end of the period referred to in paragraph 16.8) if the Certification Body (acting reasonably) considers that any of the proposed amendments to the draft Certification Assessment Plan are:

16.9.1 inconsistent with any amendments proposed by the other party;
and/or

16.9.2 not technically feasible or otherwise impractical.

16.10 Following receipt of any notice from the Certification Body under paragraph 16.9, the parties shall (acting reasonably and in good faith) discuss and attempt to resolve the concerns raised by the Certification Body. Any dispute between the parties regarding such matters shall be referred to the Dispute Resolution Procedure.

17. **CONDUCT OF CERTIFICATION ASSESSMENT**

17.1 Once the Certification Assessment Plan has been finalised in accordance with paragraph 16, the Certification Body shall conduct the Certification Assessment in accordance with the Certification Assessment Plan and the Certification Agreement. The parties shall procure that all the information described in the Certification Assessment Plan, together with any additional information reasonably required by the Certification Body, is provided to the Certification Body as soon as reasonably practicable.

17.2 Each party shall co-operate fully with the Certification Body, including by providing access to records, technical documentation, premises, equipment, systems and personnel at times reasonably requested by the Certification Body, provided that the Certification Body shall be obliged (under the terms of the Certification Agreement) to minimise any disruption to the Services.

17.3 Either party may provide additional material to the Certification Body to assist the Certification Body in conducting the Certification Assessment.

18. **CERTIFICATION REPORT**

Delivery of Certification Report

- 18.1 The Certification Agreement shall require the Certification Body to prepare a report (a "**Certification Report**"), and deliver it simultaneously to both parties, at the time specified in the final Certification Assessment Plan, setting out its findings. Those findings shall be required to state whether or not each Communications Hub Variant complies with the applicable certification requirements referred to in paragraph 13.1.

Adverse findings

- 18.2 If any Certification Report concludes that a Communications Hub Variant does not comply with the applicable certification requirements referred to in paragraph 13.1, the Contractor shall (subject to paragraphs 18.5 and 18.6) implement any changes to the relevant Communications Hub Variant (and the CHDS) that are necessary to rectify the relevant failings against the applicable certification requirements. Any necessary changes under this paragraph 18.2 shall be implemented within a timescale agreed with the DCC (but, in any event, in accordance with the timescales required by the Implementation Plan and the Associated Plans).
- 18.3 Following completion of the activities referred to in paragraph 18.2, the Certification Body shall be instructed to repeat the Certification Assessment (in whole or in part, as necessary) in relation to the relevant Communications Hub Variant in accordance with the final Certification Assessment Plan and the Certification Agreement.
- 18.4 Subject to paragraphs 18.6 and 18.7, the process in this paragraph 18 will then be repeated until the Certification Report confirms that each relevant Communications Hub Variant complies with the applicable certification requirements referred to in paragraph 13.1.

Requirements for changes to Communications Hub Variants

- 18.5 Unless otherwise agreed by the DCC in writing, any changes to any Communications Hub Variant implemented by the Contractor under paragraph 18.2 shall not result in:
- 18.5.1 any non-compliance with the Communications Hub Specifications;
 - 18.5.2 any non-compliance with the Communications Hub Laws/Standards (including any failure to comply with the CE marking requirements referred to in paragraph 11);
 - 18.5.3 any increase to the Charges;
 - 18.5.4 any decrease in any applicable Performance Measures; or
 - 18.5.5 any other relief from the Contractor's obligations under this Schedule 11 or this Agreement generally.

Contractor's right to reject

- 18.6 The Contractor shall only be entitled to reject the Certification Report if the Contractor (acting reasonably and in good faith) considers that the Certification Body has not conducted the Certification Assessment in accordance with the final Certification Assessment Plan in any material respect.

18.7 Where paragraph 18.6 applies, the Contractor shall notify the DCC accordingly and the parties (acting reasonably and in good faith) shall attempt to resolve such concerns, including, where appropriate, by repeating the Certification Assessment and/or appointing an alternative Certification Body. Any dispute between the parties regarding such matters shall be referred to the Dispute Resolution Procedure.

19. **CERTIFICATION**

19.1 A Communications Hub Variant will be deemed to have been "**Certified**" for the purposes of this Schedule 11 when each of the following requirements has been satisfied:

Certification requirements	
1.	<p>ZigBee certification</p> <p>(a) The Certification Assessment has verified that the Communications Hub Variant complies with the certification requirements referred to in paragraph 13.1.1.</p> <p>(b) The ZigBee Alliance has issued a certificate confirming that all certification processes have been successfully completed.</p>
2.	<p>DLMS/COSEM certification</p> <p>(a) The Certification Assessment has verified that the Communications Hub Variant complies with the certification requirements referred to in paragraph 13.1.2.</p> <p>(b) The DLMS User Association has issued a certificate confirming that all certification processes have been successfully completed.</p>
3.	<p>Security certification</p> <p>(a) The Certification Assessment has verified that the Communications Hub Variant complies with the certification requirements referred to in paragraph 13.1.3.</p> <p>(b) The Communications Electronic Security Group (CESG) has issued a certificate confirming that all certification processes have been successfully completed.</p>

19.2 When each Communications Hub Variant has been Certified in accordance with paragraph 19.1, it shall be included within the "Certified Products List" in accordance with the applicable provisions of the SEC.

20. **PRE-INTEGRATION AND SYSTEM INTEGRATION TESTING**

20.1 The Contractor shall conduct Pre-Integration Testing in relation to each Communications Hub Variant in order to determine whether each Communications Hub Variant complies with the Communications Hub Requirements.

20.2 Subject to successful completion of Pre-Integration Testing, the Contractor shall participate (in conjunction with the DSP but not any DCC Service Users) in System Integration Testing in order to determine whether each Communications Hub Variant integrates and operates with the applicable elements of the End-to-end Smart Metering System in accordance with the

Communications Hub Requirements and the other applicable requirements of this Agreement, including:

20.2.1 the DCC & Contractor Systems;

20.2.2 Smart Meters;

20.2.3 the HAN; and

20.2.4 IHDs.

20.3 The Pre-Integration Testing and System Integration Testing activities referred to in paragraphs 20.1 and 20.2 shall be conducted in accordance with Schedule 6.2 (Testing and Acceptance).

21. **USER INTEGRATION TESTING**

21.1 Subject to successful completion of System Integration Testing, the Contractor shall participate (in conjunction with the DSP and the relevant DCC Service Users) in User Integration Testing in order to determine whether each Communications Hub Variant integrates and operates with the applicable elements of the End-to-end Smart Metering System and the DCC Service User Systems, including:

21.1.1 the DCC & Contractor Systems;

21.1.2 Smart Meters;

21.1.3 the HAN; and

21.1.4 IHDs.

21.2 The User Integration Testing activities referred to in paragraph 21.1 shall be conducted in accordance with Schedule 6.2 (Testing and Acceptance).

22. **NOT USED**

PART D – FORECASTING AND ORDERING

23. DCC FORECASTS

Scope

- 23.1 The DCC shall provide to the Contractor a non-binding forecast of the quantity of Communications Hubs required for delivery in accordance with this Clause 23 (the "**DCC Forecast**"). The DCC Forecast shall cover a rolling twenty-four (24) month period and shall be updated by the DCC on a monthly basis.

Initial DCC Forecast

- 23.2 The initial DCC Forecast issued by the DCC shall:
- 23.2.1 start with the first complete month following achievement of the Commencement of UIT Milestone (as further described in Appendix 1 of Schedule 6.1 (Implementation Planning)) (the "**Initial Delivery Month**");
 - 23.2.2 cover the twenty-four (24) month period starting with the Initial Delivery Month; and
 - 23.2.3 be issued by the DCC by no later than the last Working Day of the month which the DCC (acting reasonably) considers to be nine (9) months prior to the Initial Delivery Month.

Monthly updates

- 23.3 Following the issue of the initial DCC Forecast under paragraph 23.2, and until the end of the Mass Roll Out Phase, the DCC shall provide an updated version of the DCC Forecast to the Contractor on a monthly basis, which shall:
- 23.3.1 start with the first month for which an Order has not yet been issued by the DCC in accordance with paragraph 24;
 - 23.3.2 cover the twenty-four (24) month period starting from the month referred to in paragraph 23.3.1; and
 - 23.3.3 be issued by the DCC by no later than the last Working Day of each month (starting with the month following the issue of the initial DCC Forecast under paragraph 23.2.3).

For the sake of clarity, until an Order has been issued by the DCC in accordance with paragraph 24 in relation to the Initial Delivery Month, the DCC Forecast shall cover the twenty-four (24) month period starting with the Initial Delivery Month.

Required content of DCC Forecasts

- 23.4 The DCC Forecast (and each updated version of the DCC Forecast) shall contain a breakdown of the total quantity of Communications Hubs required for delivery by reference to each of the following:

- 23.4.1 each month during the twenty-four (24) month period covered by the applicable version of the DCC Forecast; and
 - 23.4.2 the DNO regions in which the relevant Communications Hubs will be installed.
- 23.5 Unless otherwise agreed by the parties, the DCC shall submit the DCC Forecast (and each updated version of the DCC Forecast) in accordance with the Order Management System.

Status of DCC Forecasts

- 23.6 Without prejudice to paragraph 24.7 regarding Order requirements, the DCC Forecast (and each updated version of the DCC Forecast) is provided to the Contractor for information purposes only and shall not:

23.6.1 be binding in any way on the DCC or any DCC Service User; or

23.6.2 constitute an Order for any Communications Hubs.

24. ORDERS

Initial Order

- 24.1 The initial Order issued by the DCC shall:

24.1.1 specify the quantity of Communications Hubs required for delivery during the Initial Delivery Month; and

24.1.2 subject to paragraph 24.2, be issued by the DCC by no later than the last Working Day of the month which the DCC (acting reasonably) considers to be four (4) months prior to the Initial Delivery Month.

- 24.2 If achievement of the Commencement of UIT Milestone is delayed for any reason beyond the date assumed by the DCC for the purposes of paragraph 24.1.2, the DCC shall be entitled to adjust the initial Order, provided that any adjusted version of the Order:

24.2.1 is issued to the Contractor in accordance with the timing requirements referred to in paragraph 24.1.2; and

24.2.2 otherwise complies with the requirements of this paragraph 24.

Subsequent Orders

- 24.3 Following the issue of the initial Order under paragraph 24.1, and until the end of the Mass Roll Out Phase, the DCC shall issue an Order on a monthly basis, which shall:

24.3.1 specify the quantity of Communications Hubs required for delivery during the month that is four (4) complete months after the date of the relevant Order (the "**Delivery Month**"); and

24.3.2 be issued by the DCC by no later than the last Working Day of the relevant month.

24.4 Following the end of the Mass Roll Out Phase, the DCC may issue ad hoc Orders for Communications Hubs. Unless otherwise agreed by the parties, any ad hoc Order issued by the DCC under this paragraph 24.4 shall:

24.4.1 comply with paragraphs 24.5 and 24.6.1;

24.4.2 not be required to comply with paragraph 24.7; and

24.4.3 comply with paragraph 24.6.2 unless otherwise required by the DCC, in which case, the parties shall (acting reasonably) agree any additional delivery costs relating to the relevant ad hoc Order.

Required content of Orders

24.5 Each Order issued by the DCC shall contain a breakdown of the total quantity of Communications Hubs required for delivery during the relevant Delivery Month by reference to each of the following:

24.5.1 the type of Communications Hub Variant required;

24.5.2 the date(s) during the relevant Delivery Month on which the Communications Hubs are to be delivered to the applicable Delivery Location (each, a "**Delivery Date**");

24.5.3 the Delivery Location(s) to which the Communications Hubs are to be delivered by the Contractor;

24.5.4 the DCC Service User(s) to whom the Communications Hubs are to be delivered at the applicable Delivery Location(s); and

24.5.5 the DNO regions in which the Communications Hubs are to be installed.

24.6 Subject to paragraph 24.4 and unless otherwise agreed by the parties, the DCC shall:

24.6.1 submit all Orders in accordance with the Order Management System; and

24.6.2 ensure that each individual delivery under any Order is at least one (1) complete standard pallet (as further described in the CHHSM).

Minimum and maximum order quantities

24.7 Subject to paragraph 24.4 and unless otherwise agreed by the parties, the DCC shall ensure that, in relation to each Order, the aggregate quantity of Communications Hubs required for delivery during the relevant Delivery Month:

24.7.1 is not less than 50%, or more than 150%, of the quantity which was forecasted for delivery during the relevant Delivery Month in the version of the DCC Forecast which was issued by the DCC nine (9) months before the relevant Delivery Month; and

24.7.2 is not less than 80%, or more than 120%, of the quantity which was forecasted for delivery during the relevant Delivery Month in the

version of the DCC Forecast which was issued by the DCC six (6) months before the relevant Delivery Month.

For the avoidance of doubt, this paragraph 24.7 relates solely to the overall quantity of Communications Hubs referred to in the relevant Order and DCC Forecast for the relevant Delivery Month and is not to be calculated on a per Communications Hub Variant basis or a geographic basis (or otherwise).

Acknowledgement of Order by the Contractor

24.8 Within five (5) days after receipt of each Order from the DCC, the Contractor shall (in accordance with the Order Management System):

24.8.1 subject to paragraph 24.9, acknowledge its acceptance of the Order; and

24.8.2 confirm the quantity of each Communications Hub Variant (and any necessary auxiliary equipment) that will be delivered to each Delivery Location on each Delivery Date.

Rejection of Order by the Contractor

24.9 Subject to paragraph 24.4, the Contractor undertakes to accept each Order to the extent that the Order complies with paragraphs 24.5, 24.6 and 24.7.

24.10 To the extent that any Order:

24.10.1 is issued by the DCC at a time later than that required by paragraph 24.3.1 and 24.5.2 (i.e. less than four (4) complete months before the Delivery Month); and/or

24.10.2 does not comply with paragraph 24.7.1 and/or 24.7.2,

the Contractor shall use all reasonable endeavours to supply the relevant Communications Hubs in accordance with that Order.

24.11 Where the Contractor is unable to comply with any Order under paragraph 24.10:

24.11.1 the Contractor shall notify the DCC accordingly (in accordance with the Order Management System) within five (5) days after receipt of the relevant Order from the DCC, providing any supporting evidence reasonably requested by the DCC;

24.11.2 following receipt of the Contractor's notice, but subject to paragraph 24.12, the DCC may amend the relevant Order to rectify the issue(s) identified by the Contractor and re-issue it to the Contractor; and

24.11.3 the parties will then comply with their obligations under this paragraph 24 in relation to the amended Order.

24.12 Any dispute under paragraph 24.11 regarding the Contractor's rejection of an Order shall be resolved in accordance with the Dispute Resolution Procedure.

Deemed acceptance of Orders

- 24.13 If the Contractor has failed to issue a notice to the DCC under either paragraph 24.8 or 24.11.1 (as applicable) within five (5) days after receipt of the relevant Order from the DCC, then the Order will be deemed to have been accepted by the Contractor.

Status of Orders

- 24.14 Upon acceptance of an Order in accordance with paragraph 24.8 or 24.13 (as applicable), the Contractor shall be bound to supply the relevant Communications Hubs in accordance with the terms of the Order.

Amendment of Orders

- 24.15 The DCC may vary any of the Delivery Dates relating to an Order by notifying the Contractor not less than thirty (30) days before the relevant Delivery Date(s). The Contractor shall comply with any such variation (provided that any varied Delivery Date(s) are within five (5) days before or after the original Delivery Date(s)). The Contractor shall not be entitled to make any additional charges to the DCC as a result of such variation.
- 24.16 Any variation of an Order by the DCC under paragraph 24.15 shall be notified to the Contractor in accordance with the Order Management System.

Confirmation of delivery times

- 24.17 The relevant DCC Service User shall notify the Contractor (via the Order Management System) of the required delivery time for each delivery by no later than thirty (30) days before the relevant Delivery Date.

Governance arrangements

- 24.18 As part of the governance arrangements under Schedule 8.1 (Governance), the Contractor shall work with the DCC to ensure, to the extent reasonably practicable, that the ordering and supply of Communications Hubs is optimised and organised so as not to disrupt the roll out plans of the DCC Service Users.

25. ORDER MANAGEMENT SYSTEM

- 25.1 The Contractor shall implement a secure, online system for the tracking, monitoring and management of individual Orders (and DCC Forecasts) that complies with the requirements of this Schedule 11 and the CHHSM (the "**Order Management System**"). The Order Management System shall be available to the DCC and the relevant DCC Service Users on a 24/7 basis.
- 25.2 In particular, the Order Management System shall provide for the following functions and activities:
- 25.2.1 the submission of Orders and DCC Forecasts by the DCC;
 - 25.2.2 the acceptance or rejection of Orders by the Contractor;
 - 25.2.3 the amendment of Orders by the DCC in accordance with paragraph 24.15;

- 25.2.4 the confirmation of delivery times by the relevant DCC Service User in accordance with paragraph 24.17;
 - 25.2.5 the notification by the DCC or the relevant DCC Service User of the delivery procedures and requirements in place in relation to a Delivery Location;
 - 25.2.6 the management and monitoring of Orders from the date of submission until the Order is completed following delivery;
 - 25.2.7 the ability for the DCC and the relevant DCC Service Users to monitor the status of Orders on a real time basis;
 - 25.2.8 the provision of Delivery Documentation in advance of delivery in accordance with paragraph 35.2.1; and
 - 25.2.9 the confirmation of delivery and completion of Orders.
- 25.3 The Contractor shall implement an appropriate interface to enable the integration of the Order Management System with the DCC Service Management System such that Orders may be automatically generated, managed and tracked through the Service Management Service Request process.
- 25.4 The Contractor shall provide the DCC and each of the DCC Service Users with access to the Order Management System by no later than the date which is three (3) months before Initial Delivery Month.

26. **COMMUNICATIONS HUB VARIANTS**

HAN Variants

- 26.1 As between the parties, the DCC shall be responsible for determining the quantities of HAN Variant required in respect of each Order (and each individual delivery under each Order).

WAN Variants

- 26.2 Subject to the Contractor complying with its obligations under paragraphs 26.3 to 26.5, as between the parties, the DCC shall be responsible for determining the quantities of WAN Variant required in respect of each Order (and each individual delivery under each Order).
- 26.3 The Contractor shall, at all times during the Service Period:
- 26.3.1 provide the DCC and each DCC Service User with access to the Coverage Database to enable the DCC and each DCC Service User to determine the number of each WAN Variant required in each Order; and
 - 26.3.2 ensure that the Coverage Database is fully up-to-date and complies with the requirements set out in Schedule 2.1 (DCC Requirements).
- 26.4 The Contractor shall provide to the DCC a description (to a reasonable level of detail) of each WAN Variant which is sufficient to enable the DCC or any DCC Service User to determine which WAN Variant is required in relation to each

type of Consumer Premises. The information referred to in this paragraph 26.4 shall:

26.4.1 be provided in clear and plain English;

26.4.2 include adequate definitions of all key terms, words and symbols; and

26.4.3 otherwise be presented in a clear, complete and accurate manner.

26.5 The Contractor shall respond promptly to any request from the DCC (whether for itself or on behalf of any DCC Service User) for clarification, further analysis or information or other assistance to the extent reasonably necessary to enable the DCC or any DCC Service User to determine which WAN Variant is required in relation to each type of Consumer Premises.

27. **AUXILIARY EQUIPMENT**

In respect of each delivery under each Order, the Contractor is responsible for determining the type and quantity of auxiliary equipment (including any antennae which are external to the Communications Hub itself) which are necessary for relevant Communications Hubs to connect to, and interface with, the SMWAN in accordance with the requirements of this Agreement, based on the information provided in the relevant Order, the DCC Forecast and the Coverage Database.

PART E – MANUFACTURING OF COMMUNICATIONS HUBS

28. PRODUCTION CAPACITY REQUIREMENTS

28.1 The Contractor shall commence the manufacture (in accordance with the CHDS) of production versions of each Communications Hub Variant provided that the relevant Communications Hub Variant has successfully completed each of the certification and testing requirements in accordance with the relevant provisions of Part C of this Schedule 11.

28.2 Subject to paragraph 28.1, the Contractor shall, at all times, maintain sufficient production capacity and stocks of each Communications Hub Variant necessary to enable it to:

28.2.1 comply with the delivery requirements of individual Orders (subject to the maximum order quantities under paragraph 24.7 of Part D);

28.2.2 comply with the estimated delivery requirements set out in the DCC Forecast (as updated from time to time in accordance with Part D of this Schedule 11); and

28.2.3 otherwise comply with its obligations under this Agreement.

29. QUALITY ASSURANCE

29.1 The Contractor shall prepare, and deliver to the DCC, a separate Quality Plan that is dedicated to the design, manufacturing, supply and disposal of Communications Hubs under this Schedule 11 (the "**Communications Hub Quality Plan**").

29.2 The Communications Hub Quality Plan shall be prepared in accordance with the process set out in Clause 22 of this Agreement, provided that (in addition to the requirements set out in Clause 22):

29.2.1 the Communications Hub Quality Plan shall also be consistent with any quality standards forming part of the Communications Hub Laws/Standards; and

29.2.2 the Communications Hub Quality Plan shall be reviewed and updated under Clause 22.7 within thirty (30) days after the implementation of any material change to the CHDS.

30. COMPLIANCE WITH COMMUNICATIONS HUB REQUIREMENTS

The Contractor shall ensure that each Communications Hub manufactured and delivered to the DCC under this Schedule 11 complies with CHDS and the Communications Hub Requirements.

31. INSPECTIONS BY THE DCC

31.1 The DCC shall have the right to enter any premises of the Contractor or its Sub-contractors which are used for the manufacture, assembly, delivery and/or disposal of the Communications Hubs (and/or the diagnosis of Faults under Part H) in order to:

- 31.1.1 inspect the facilities and the equipment used in the manufacture, assembly, delivery and/or disposal of the Communications Hubs;
 - 31.1.2 inspect the corrective action plan maintained by the Contractor in relation to the safety of the Communications Hubs and any other record or documentation created by the Contractor pursuant to paragraph 48;
 - 31.1.3 inspect and take samples of the Communications Hubs (or their individual components);
 - 31.1.4 inspect the stock levels of the Communications Hubs (or their individual components);
 - 31.1.5 observe and inspect the manufacture, assembly, delivery and/or disposal of the Communications Hubs;
 - 31.1.6 audit the quality management systems applied in relation to the manufacture, assembly, delivery and/or disposal of the Communications Hubs (including the Communications Hub Quality Plan and any related quality manuals and procedures);
 - 31.1.7 audit the health & safety management systems applied in relation to the manufacture, assembly, delivery and/or disposal of the Communications Hubs; and/or
 - 31.1.8 observe, inspect and/or audit the Fault diagnosis procedures under Part H, including to ensure that the Contractor is conducting Fault diagnosis in accordance with this Schedule 11.
- 31.2 Any inspections under paragraph 31.1 shall be carried out during the Contractor's normal business hours on reasonable notice to the Contractor.
- 31.3 The Contractor shall co-operate, and shall procure that its Sub-contractors co-operate, with the DCC, including by providing the DCC (or its nominated representative) with all information and documentation, and access to any relevant Contractor Personnel and/or to any relevant Site, which the DCC reasonably requires in connection with the conduct of any audits or inspections under this paragraph 31 at no additional charge to the DCC.
- 31.4 Paragraph 31.5 shall apply if, following any inspection, the DCC (acting reasonably) considers that:
- 31.4.1 any Communications Hub Variant;
 - 31.4.2 any components used in any Communications Hub Variant;
 - 31.4.3 the Contractor's stock levels of any Communications Hub Variant or its individual components;
 - 31.4.4 any aspect of the manufacture, assembly, delivery and/or disposal of the Communications Hubs; and/or
 - 31.4.5 any aspect of the Fault diagnosis procedures under Part H,

does not, or is not likely to, comply with the requirements of this Schedule 11 or any other relevant provisions of this Agreement.

31.5 The DCC may notify the Contractor if any of the circumstances referred to in paragraph 31.4 applies, in which case:

31.5.1 the Contractor shall immediately take such action as is necessary to remedy such non-compliance (and shall immediately notify the DCC once such non-compliance has been remedied); and

31.5.2 the DCC shall have the right to re-conduct inspections and take further samples following such notification.

31.6 The Contractor shall ensure that its Sub-contractors also comply with its obligations under this paragraph 31.

31.7 The Contractor acknowledges and accepts that any inspection by the DCC under this paragraph 31 shall not:

31.7.1 relieve the Contractor of its responsibility for ensuring that the Communications Hubs comply with the requirements of this Schedule 11 (including the Communications Hub Requirements); or

31.7.2 relieve the Contractor of any other obligation under this Agreement.

PART F – DELIVERY OF COMMUNICATIONS HUBS

32. DELIVERY LOCATIONS

- 32.1 There shall be a maximum of two (2) Delivery Locations per DCC Service User. All Delivery Locations shall be located in Great Britain.
- 32.2 The DCC shall notify the Contractor of the Delivery Locations required for each delivery as part of the relevant Order, in accordance with paragraph 24.5 of Part D.
- 32.3 The Delivery Locations notified by the DCC under this Part F are subject to change from time to time, subject always to the requirements of paragraph 32.1.

33. DELIVERY

- 33.1 In relation to each Order accepted by the Contractor in accordance with paragraph 24.14, the Contractor shall deliver the quantity of Communications Hubs specified in the Order (including the required quantity of each Communications Hub Variant, as determined in accordance with paragraph 26) to the relevant Delivery Location:
 - 33.1.1 on the relevant Delivery Date;
 - 33.1.2 during the relevant delivery time (as notified by the relevant DCC Service User in accordance with paragraph 24.17); and
 - 33.1.3 in accordance with any reasonable delivery procedures and requirements in place in relation to the relevant Delivery Location (as notified via the Order Management System from time to time).
- 33.2 For the avoidance of doubt, each delivery of Communications Hubs shall include the type and quantity of auxiliary equipment (including any antennae which are external to the Communications Hub itself) which are necessary for relevant Communications Hubs to connect to, and interface with, the SMWAN in accordance with the requirements of this Agreement.
- 33.3 Without limiting paragraph 37 and the DCC's other rights and remedies under this Schedule 11, the delivery of each pallet of Communications Hubs shall be deemed to be completed when:
 - 33.3.1 the relevant pallet has been unloaded at the relevant Delivery Location (as further described in the CHHSM); and
 - 33.3.2 any other handover arrangements referred to in the CHHSM have been completed.
- 33.4 If the Contractor is unable to complete any delivery of Communications Hubs in accordance with paragraph 33.3 as a result of an act or omission of the relevant DCC Service User (where such act or omission is specified in the CHHSM), then the relevant Communications Hubs shall be disregarded from the calculation of the "number of Communications Hubs scheduled for delivery" in the relevant Delivery Month for the purposes of Performance Measure 1.1 in Appendix 2.2 of this Schedule 11.

34. **TRANSIT REQUIREMENTS**

34.1 Without limiting any applicable Communications Hub Requirements, the Contractor shall:

34.1.1 ensure that all Communications Hubs are securely packaged;

34.1.2 without prejudice to paragraph 34.1.1, ensure that all Communications Hubs are packaged and labelled in accordance with the applicable requirements of the CHHSM;

34.1.3 ensure that, at all times, all Communications Hubs are transported from the relevant manufacturing premises to the relevant Delivery Location in a safe and secure manner;

34.1.4 without limiting paragraph 34.1.3, use all reasonable endeavours to ensure that no Communications Hub is subject to loss, damage, destruction, theft, tampering or other unauthorised access prior to their delivery to the relevant Delivery Location;

34.1.5 immediately notify the DCC if any Communications Hubs are lost, damaged, destroyed, stolen or subject to any tampering or other unauthorised access prior to their delivery to the relevant Delivery Location; and

34.1.6 if any Communications Hubs are lost, damaged, destroyed, stolen or subject to any tampering or other unauthorised access prior to their delivery to the relevant Delivery Location, the Contractor shall promptly replace the same at no additional cost to the DCC.

35. **PROVISION OF DELIVERY DOCUMENTATION**

35.1 The Contractor shall provide the delivery documentation specified in the CHHSM (the "**Delivery Documentation**") in accordance with this paragraph 35. The Delivery Documentation shall, as a minimum, include:

35.1.1 the Order reference number and date of submission;

35.1.2 details of whether or not the Communications Hub has been reconditioned by the Contractor in accordance with paragraph 46;

35.1.3 details of the Delivery Location;

35.1.4 the scheduled Delivery Date and delivery time and, if different, the actual date and time of delivery;

35.1.5 details of the Communications Hub Variants (and any auxiliary equipment) included with the delivery;

35.1.6 details of the manufacturer (and date of manufacture) of each Communications Hub;

35.1.7 the batch number applicable to each Communications Hub; and

35.1.8 unique identification codes for each Communications Hub (in human and machine readable format).

35.2 The Contractor shall ensure that, in relation to each delivery of Communications Hubs under this Schedule 11, the Delivery Documentation is made available to the DCC and the relevant DCC Service User:

35.2.1 electronically via the Order Management System at least two (2) Working Days before the relevant Delivery Date; and

35.2.2 in hard copy at delivery.

36. DELIVERY DELAYS

36.1 If the Contractor becomes aware that the delivery of any Communications Hubs will, or is likely to, be delayed for any reason, then the Contractor shall immediately notify the DCC accordingly, specifying:

36.1.1 the cause and expected duration of the delay; and

36.1.2 the likely effect of the delay on the performance of its delivery obligations under this Schedule 11.

36.2 The Contractor shall take all reasonable steps to minimise the effect of the delay on the performance of its delivery obligations under this Schedule 11.

36.3 If the Contractor fails to deliver any Communications Hubs to the relevant Delivery Location by the relevant Delivery Date, then, without prejudice to the DCC's other rights and remedies (including under Appendix 2.2), the Contractor shall ensure that such Communications Hubs are delivered to the relevant Delivery Location as soon as possible and at no additional cost to the DCC or the relevant DCC Service User.

37. INSPECTION OF COMMUNICATIONS HUBS

37.1 The CHHSM shall set out the following information (to a reasonable level of detail):

37.1.1 the process to be applied by the relevant DCC Service User to reconcile the quantity and type of the delivered Communications Hubs with the Delivery Documentation provided by the Contractor under paragraph 35;

37.1.2 the scope of the visual inspections to be carried out by the relevant DCC Service User following delivery of the Communications Hubs, as further described in paragraph 37.2; and

37.1.3 the notifications (and supporting information) to be provided by the relevant DCC Service User, and the procedures to be followed by the Contractor and the relevant DCC Service User, in relation to the inspections under this paragraph 37, including where:

- 37.1.3.1 the relevant DCC Service User is unable to reconcile the quantity and type of any of the delivered Communications Hubs with the Delivery Documentation provided by the Contractor under paragraph 35; and/or
 - 37.1.3.2 the inspections carried out by the relevant DCC Service User identify any damage or tampering to any of delivered Communications Hubs.
- 37.2 The visual inspections carried out by the relevant DCC Service User under paragraph 37.1.2 shall:
 - 37.2.1 be conducted within five (5) days after delivery of the relevant Communications Hubs;
 - 37.2.2 be limited to a visual inspection of the packaged delivery pallets to assess whether there is any manifest damage to, or tampering with, the external packaging of the pallets; and
 - 37.2.3 not involve the removal of any packaging from the delivery pallets and/or any inspection of individual Communications Hubs.
- 37.3 The Contractor shall comply with its obligations under the CHHSM in relation to inspections under this paragraph 37. For the avoidance of doubt, the parties acknowledge that the DCC's obligations regarding compliance by the relevant DCC Service User with the CHHSM are set out in Schedule 3.
- 37.4 If, following any inspections under this paragraph 37, all or any part of the relevant delivery is rejected by the relevant DCC Service User (in accordance with the applicable provisions of the CHHSM), then without prejudice to the DCC's other rights and remedies (including under Appendix 2.2) and at no additional cost to the DCC or the relevant DCC Service User:
 - 37.4.1 the Contractor shall collect the rejected quantity of Communications Hubs from the relevant Delivery Location as soon as possible; and
 - 37.4.2 the Contractor shall deliver replacement Communications Hubs (of the same quantity and type as the rejected Communications Hubs) to the relevant Delivery Location as soon as possible (and, in any event, within the applicable timescales specified in the CHHSM) after receipt of a rejection notice from the DCC or the relevant DCC Service User in accordance with the CHHSM.

38. TRANSFER OF RISK AND TITLE

Risk

- 38.1 Risk in the Communications Hubs (including any replacement Communications Hubs supplied by the Contractor under this Schedule 11) shall transfer from the Contractor to the relevant DCC Service User upon completion of delivery of the relevant Communications Hubs (as determined in accordance with paragraph 33.3 and the CHHSM).
- 38.2 The transfer of risk in the Communications Hubs under paragraph 38.1 shall not relieve the parties of their respective rights and obligations under this Schedule 11.
- 38.3 Risk in any Communications Hubs that are:
- 38.3.1 collected by the Contractor from the relevant DCC Service User in accordance with paragraph 37.4.1 or 55.1.3 shall revert to the Contractor on collection of such Communications Hub from the relevant Delivery Location; and
 - 38.3.2 returned to the Contractor by the DCC or the relevant DCC Service User in accordance with Part H shall revert to the Contractor on the delivery of such Communications Hubs to the relevant Returns Location.

Title

- 38.4 Without limiting the parties' respective rights and obligations under this Schedule 11, title in the Communications Hubs shall, as between the Contractor, the DCC and the relevant DCC Service User, be retained by the Contractor.

PART G – INSTALLATION, OPERATION AND MAINTENANCE

39. SCOPE OF RIGHTS AND OBLIGATIONS

39.1 Except as set out in this Schedule 11, the parties' respective rights and obligations regarding the installation, operation and maintenance of Communications Hubs are governed by the other provisions of this Agreement, including (in particular):

Provision	Scope
Schedule 6.3	Preparation of the Communications Hubs Installation Process Support Materials (CHIPSM)
Schedule 6.3	Preparation of the Communications Hubs Maintenance Support Materials (CHMSM)
Part C of Schedule 2.1	Installation, maintenance and training
Part D of Schedule 2.1	Service management

39.2 For the avoidance of doubt, the parties acknowledge that the DCC's obligations regarding compliance by the relevant DCC Service User with the CHIPSM and the CHMSM are set out in Schedule 3 (DCC Responsibilities).

PART H – FAULTS AND RETURNS

40. KEY CONCEPTS

40.1 In this Schedule 11, a "**Fault**" means any fault or defect in relation to a Communications Hub, including a failure of the Communications Hub to operate in accordance with the CHDS and/or the Communications Hub Requirements, and "**Faulty**" shall be construed accordingly.

40.2 In this Schedule 11, a "**DCC Fault**" means:

Type of DCC Fault	Description
Physical damage after delivery	A Fault resulting from physical damage to the relevant Communications Hub which occurred after completion of delivery of the relevant Communications Hub (as determined in accordance with paragraph 33.3 and the CHHSM).
Non-compliance with CHHSM	A Fault resulting from failure of the DCC Service User to comply with the CHHSM in relation to the storage and transit of the relevant Communications Hub.
Non-compliance with CHIPSM	A Fault resulting from a failure by the relevant Installer to comply with the CHIPSM in relation to the installation of the relevant Communications Hub.
Non-compliance with CHMSM	If a Fault could have been resolved at the relevant Consumer Premises without replacement of the relevant Communications Hub by compliance with the applicable maintenance arrangements set out in the CHMSM, the relevant Faulty Communications Hub shall be deemed to be subject to a DCC Fault.
	If the relevant DCC Service User fails to identify, in accordance with paragraph 43.1.1.2, the reason for returning the Faulty Communications Hub (including, where available, details of the Fault identified by the relevant DCC Service User) in accordance with the instructions set out in the CHMSM, the relevant Fault shall be deemed to be a DCC Fault.
	If it is not possible to determine the cause of a Fault (or to verify that a Fault exists) as a result of physical damage to the Faulty Communications Hub resulting from it not being packaged for return to the Contractor in accordance with the applicable requirements of the CHHSM, then the relevant Communications Hub shall be deemed to be subject to a DCC Fault.

40.3 In this Schedule 11, a "**Contractor Fault**" means any Fault other than a DCC Fault, including (for the avoidance of doubt) a Fault resulting from physical damage to the relevant Communications Hub which occurred before the completion of delivery of the relevant Communications Hub (as determined in accordance with paragraph 33.3 and the CHHSM).

If a cellular WAN Variant is successfully installed at Consumer Premises, but the Contractor subsequently wishes to install a cellular + RF mesh WAN Variant in its place in order to enable other Communications Hubs with a cellular + RF mesh WAN Variant to connect to the SMWAN, then:

- (a) the cellular WAN Variant that is replaced shall be deemed to be subject to a Contractor Fault under paragraph **Error! Reference source not found.** (and the consequences set out in paragraph **Error! Reference source not found.** shall apply); and
- (b) the relevant DCC Service User shall comply with its obligations under paragraphs 42 and 43 regarding the replacement and return of the cellular WAN Variant referred to above.

40.4 In this Schedule 11, "**No Fault Found**" means, in relation to any Communications Hub which is returned by the relevant DCC Service User in accordance with paragraph 43 as a result of an apparent Fault, that when the relevant Communications Hub is analysed in accordance with paragraph 44 (including, where applicable, paragraph 44.10 or 44.11), it is determined that there is no Fault in relation to the relevant Communications Hub, which is proved to be capable of operating in accordance with the CHDS and the Communications Hub Requirements.

40.5 In this Schedule 11:

40.5.1 a "**Lost/Stolen Communications Hub**" means any Communications Hub that is lost or stolen after the completion of delivery (as determined in accordance with paragraph 33.3 and the CHHSM) and, as a result, cannot be installed or operated at Consumer Premises; and

40.5.2 a "**No Fault Removal**" means the removal by the relevant DCC Service User of a Communications Hub which has been installed at Consumer Premises other than as a the result of a Fault, including where:

40.5.2.1 the Smart Meter is being de-installed for any reason;

40.5.2.2 the Consumer Premises are being demolished or permanently vacated; and/or

40.5.2.3 the Communications Hub is being replaced with an alternative Communications Hub in order to enable the gas Smart Meter to connect to the SMWAN.

40.6 For the avoidance of doubt, the parties acknowledge that the DCC's obligations regarding compliance by the relevant DCC Service User with the requirements of this Part H are set out in Schedule 3 (DCC Responsibilities).

41. **SCOPE OF THIS PART H**

41.1 This Part H applies where a Fault is identified:

41.1.1 after the completion of delivery of the relevant Communications Hub (as determined in accordance with paragraph 33.3 and the CHHSM) but before installation;

41.1.2 during an attempted installation of the relevant Communications Hub at the Consumer Premises; or

41.1.3 at any time following the successful installation of the relevant Communications Hub at the Consumer Premises, where the relevant Fault cannot be resolved in accordance with the relevant remote maintenance procedures (as referred to in Part C of Schedule 2.1) or onsite maintenance procedures in accordance with the CHMSM,

and whether such Fault is identified by the Installer, the DCC, the Contractor, the relevant DCC Service User or otherwise.

41.2 The applicable provisions of this Part H also apply in relation to Lost/Stolen Communications Hubs and No Fault Removals.

41.3 This Part H shall not apply where the Fault is rectified without replacing the relevant Communications Hub, whether by remote maintenance activities (in accordance with Part C of Schedule 2.1) or onsite maintenance activities in accordance with the CHMSM.

42. **REPORTING PROCEDURES**

Fault procedures

42.1 Where a Fault has been identified under paragraph 41.1, the relevant DCC Service User shall comply with the applicable Fault procedures set out in the CHIPSM or the CHMSM (as applicable), including:

42.1.1 seeking to identify (and record) the cause of the Fault;

42.1.2 recording details of the Fault in the DCC Service Management System, including the asset number of the relevant Communications Hub;

42.1.3 de-installing the Faulty Communications Hub from the relevant Consumer Premises; and

42.1.4 wherever reasonably practicable, installing a replacement Communications Hub whilst at the relevant Consumer Premises.

Lost/Stolen Communications Hub procedures

42.2 Where a Lost/Stolen Communications Hub has been identified, the relevant DCC Service User shall record such circumstances in the DCC Service Management System, including the asset number of the relevant Communications Hub.

No Fault Removal Procedures

42.3 Where the need for a No Fault Removal has been identified, the relevant DCC Service User shall comply with the applicable procedures set out in the CHMSM, including:

42.3.1 recording details of the No Fault Removal in the DCC Service Management System, including the asset number of the relevant Communications Hub and the reason(s) for the No Fault Removal; and

42.3.2 de-installing the relevant Communications Hub from the relevant Consumer Premises.

43. **RETURNS PROCEDURE**

Return of Faulty Communications Hub

43.1 The relevant DCC Service User shall return all Faulty Communications Hubs to a Returns Location in accordance with the returns procedures set out in the CHMSM, including:

43.1.1 providing standard returns documentation to the DCC and the Contractor regarding the Faulty Communications Hub, including:

43.1.1.1 the asset number of the Faulty Communications Hub being returned;

43.1.1.2 the reason for returning the Faulty Communications Hub (including, where available, details of the Fault identified by the relevant DCC Service User);

43.1.1.3 the date on which the Fault was identified; and

43.1.1.4 the date of de-installation of the Faulty Communications Hub from the relevant Consumer Premises.

43.1.2 packaging the Faulty Communications Hub for delivery to the relevant Returns Location in accordance with the applicable requirements of the CHMSM; and

43.1.3 returning the Faulty Communications Hub to the relevant Returns Location by no later than ninety (90) days after the date of its de-installation from the relevant Consumer Premises.

43.2 The Contractor shall comply with its obligations under the returns procedures set out in the CHMSM, including:

43.2.1 confirming receipt of the Faulty Communications Hub to the DCC and the relevant DCC Service User;

43.2.2 promptly on delivery of the Faulty Communications Hub to the relevant Returns Location, verifying that it has been packaged in accordance with the applicable requirements of the CHMSM; and

43.2.3 immediately notifying the DCC if the Contractor (acting reasonably) believes that the Faulty Communications Hub has not been packaged in accordance with the applicable requirements of CHMSM.

Return of No Fault Removal Communications Hubs

43.3 Where a No Fault Removal has occurred, the relevant DCC Service User shall return the removed Communications Hub to a Returns Location in accordance with the returns procedure set out in the CHMSM and the parties shall comply with the provisions of paragraphs 43.1 and 43.2, provided that, for the purposes of this paragraph 43.3:

43.3.1 any reference to a "Faulty Communications Hub" shall be deemed to be a reference to the Communications Hub which has been removed as a result of the No Fault Removal; and

43.3.2 a reference to "Fault" in paragraph 43.1.1.2 shall be deemed to be a reference to the circumstances of the No Fault Removal.

44. **DIAGNOSIS OF FAULTS**

Agreement of fault diagnosis process

44.1 The parties (acting reasonably and in good faith) shall use their respective reasonable endeavours to agree a detailed process for the diagnosis of Faults under this paragraph 44 within ninety (90) days after the Effective Date, which may include:

44.1.1 the diagnosis of Faults on a periodic (e.g. quarterly) basis by reference to an agreed sample of Faulty Communications Hubs which have been returned during that period; and

44.1.2 an agreement by the parties to apply the results of the diagnosis of the relevant sample of Faulty Communications Hub (i.e. the ratio of DCC Faults to Contractor Faults) to all Faulty Communications Hubs which have been returned during that period.

Until any sampling approach has been agreed by the parties under this paragraph 44.1, all Faulty Communications Hubs shall be diagnosed on an individual basis in accordance with this paragraph 44.

Acceptance by Contractor of DCC Service User's diagnosis

44.2 Where, in relation to any Faulty Communications Hub, the Contractor accepts the opinion of the relevant DCC Service User regarding the cause of the Fault (as notified to the Contractor in accordance with paragraph 43.1.1.2), the Contractor shall notify the DCC accordingly within five (5) days after receipt by the Contractor of the Faulty Communications Hub at the relevant Returns Location. Such notice shall confirm whether the relevant Fault is a DCC Fault or a Contractor Fault.

Fault analysis

44.3 Paragraphs 44.4 to 44.8 shall apply where the Contractor does not accept the opinion of the relevant DCC Service User regarding the cause of the Fault.

44.4 The Contractor shall conduct, in accordance with the procedures set out in Appendix 4.1, a detailed analysis of the relevant Faulty Communications Hub in order to determine (in the Contractor's reasonable opinion) the nature and cause of the Fault, including (in particular) whether:

44.4.1 it is a DCC Fault or a Contractor Fault; or

44.4.2 there was No Fault Found in relation to the relevant Communications Hub.

44.5 Within the timescales referred to in paragraph 44.6, the Contractor shall provide to the DCC a written report (which may be in an electronic format)

(the "**Fault Analysis Report**") which sets out the following information (to a reasonable level of detail):

No.	Fault Analysis Report contents
1.	<p>Cause of Fault</p> <p>The nature and cause of the Fault, including (in particular) whether:</p> <p>(a) it is a DCC Fault or a Contractor Fault; or</p> <p>(b) there was No Fault Found in relation to the relevant Communications Hub.</p>
2.	<p>Agreement with DCC Service User diagnosis</p> <p>Whether or not (following the Contractor's detailed analysis) the Contractor's opinion of the cause of the Fault is different to the cause originally identified by the relevant DCC Service User.</p>
3.	<p>Supporting evidence</p> <p>Appropriate evidence necessary to support the Contractor's conclusions in the Fault Analysis Report.</p>
4.	<p>Other information</p> <p>Any other information or analysis required to be included in the Fault Analysis Report (as specified in the CHMSM).</p>

44.6 The Fault Analysis Report shall be provided to the DCC within thirty (30) days after receipt by the Contractor of the relevant Faulty Communications Hub at the relevant Returns Location.

44.7 Within thirty (30) days after receipt of the Fault Analysis Report from the Contractor, the DCC (having, where appropriate, consulted with the relevant DCC Service User) shall notify the Contractor whether it accepts the opinion of the Contractor regarding the cause of the Fault, including (in particular) whether:

44.7.1 it is a DCC Fault or a Contractor Fault; or

44.7.2 there was No Fault Found in relation to the relevant Communications Hub.

44.8 Where the DCC notifies the Contractor under paragraph 44.7 that it accepts the Fault Analysis Report, then, subject to paragraph **Error! Reference source not found.**, the relevant provisions of paragraph 45 shall apply.

Dispute resolution

44.9 Paragraph 44.10 or 44.11 (as applicable) shall apply where the DCC notifies the Contractor under paragraph 44.7 that it does not accept the Fault Analysis Report.

44.10 In the circumstances referred to in paragraph 44.9, the matter shall, subject to paragraph 44.11, be referred to an Expert for determination in accordance with the procedure set out in Part C of Schedule 8.3 (Dispute Resolution

Procedure), and shall be deemed to be a Dispute of a technical nature for the purposes of paragraphs 13.1(a) and 14.2(c) of Part C of Schedule 8.3.

44.11 Paragraph 44.10 shall not apply where the DCC notifies the Contractor that the relevant DCC Service User has triggered the SEC Dispute Resolution Procedure, in which case, Part H of Schedule 8.3 (Dispute Resolution Procedure), including paragraph 33, shall apply.

44.12 If, notwithstanding the completion of the relevant dispute resolution procedures under paragraph 44.10 or 44.11 (as applicable), the cause of the Fault has not been determined, it shall be deemed to be a Contractor Fault.

45. **CONSEQUENCES OF FAULTS**



PART I – RECONDITIONING, DISPOSAL AND PRODUCT SAFETY

46. RECONDITIONING

- 46.1 Subject to paragraphs 46.2 and 46.3, the Contractor shall be required to recondition any Communications Hubs which have been returned by the DCC Service Users in accordance with paragraph 43 and re-deliver them under this Schedule 11 as part of a subsequent Order (each, a "**Reconditioned Communications Hub**") where the cost incurred by the Contractor in reconditioning the relevant Communications Hub in accordance with this paragraph 46 would be less than the remaining asset value of the Communications Hub (as calculated in accordance with the Communications Hub Termination Table).
- 46.2 In relation to any Reconditioned Communications Hub that is re-delivered to a DCC Service User under this Schedule 11, the Contractor shall (prior to the date of its re-delivery):
- 46.2.1 ensure that all Data residing on the Reconditioned Communications Hub has been permanently erased in accordance with HMG Information Assurance Standard No. 5 (Secure Sanitisation of Protectively Marked or Sensitive Information);
 - 46.2.2 ensure that all software and firmware installed on the Reconditioned Communications Hub is fully up-to-date;
 - 46.2.3 ensure that the Reconditioned Communications Hub has been fully tested to verify that it complies with the requirements of this Agreement and is capable of operating in accordance with the CHDS and the Communications Hub Requirements;
 - 46.2.4 ensure that the Reconditioned Communications Hub is properly re-furnished and in good cosmetic condition; and
 - 46.2.5 update its database and records relating to the Communications Hub to reflect the re-delivered status of the Reconditioned Communications Hub.
- 46.3 If the DCC (acting reasonably) believes that the Contractor has failed to comply with any of its obligations under paragraph 46.2 in respect of a material quantity of Reconditioned Communications Hubs, the DCC shall be entitled to suspend the requirements regarding reconditioning under paragraph 46.1 until such time as the DCC (acting reasonably) believes that the Contractor is capable of, and shall, comply with its obligations under paragraph 46.2 in respect of future Reconditioned Communications Hubs.
- 46.4 In paragraph 46.3, a "**material quantity**" shall be equal to the average number of Communications Hubs delivered by the Contractor in a Delivery Month during the previous twelve (12) months.
- 46.5 Except where paragraph **Error! Reference source not found.** or **Error! Reference source not found.** applies, the Contractor shall bear its own

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costs and expenses associated with compliance with its obligations under this paragraph 46.

46.6 For the avoidance of doubt, the Contractor's compliance with its obligations under this paragraph 46 may be subject of an audit in accordance with Schedule 2.5 (Security Management Plan) and/or Schedule 8.4 (Records and Audit Provisions).

47. DISPOSAL

47.1 This paragraph 47 applies to any Communications Hubs which have been returned by the DCC Service Users in accordance with paragraph 43, and which have not been reconditioned by the Contractor in accordance with paragraph 46 (each, a "**Disposal Communications Hub**").

47.2 The Contractor shall dispose of all Disposal Communications Hubs in a safe and secure manner which:

47.2.1 complies with all applicable Laws, Standards and Consents;

47.2.2 notwithstanding the generality of paragraph 47.2.1, complies with the following additional requirements relating to waste electrical and electronic equipment storage and recycling and/or the hazards associated with such waste (including, in each case, applicable regulations made thereunder and any amendments or replacements thereto or thereof):

Additional disposal requirements	
1.	The Waste (England and Wales) Regulations 2011
2.	Hazardous Waste (England and Wales) Regulations 2005 (SI 2005/894)
3.	The Environmental Permitting (England and Wales) Regulations 2010 (SI 2010/675)
4.	The Producer Responsibility Obligations (Packaging Waste) Regulations 2007
5.	The Environmental Protection Act 1990
6.	The Pollution Prevention and Control Act 1999
7.	The Health & Safety at Work etc. Act 1974

47.2.3 ensures that any waste which is electronic or electrical waste is treated at an authorised treatment facility which complies with the following requirements:

Additional disposal requirements

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1.	Directive 2012/19/EU on waste electrical and electronic equipment
2.	The Waste Electrical and Electronic Equipment Regulations 2006 (SI 2006/3289)

- 47.2.4 where required under the terms of the Waste Batteries and Accumulators Regulations 2009 (SI 2009/890), ensures that any batteries contained in any waste are delivered to and treated by an approved battery treatment operator or an approved batteries exported as defined in those regulations;
- 47.2.5 complies with HMG Information Assurance Standard No. 5 (Secure Sanitisation of Protectively Marked or Sensitive Information); and
- 47.2.6 otherwise complies with Good Industry Practice regarding the disposal of electronic equipment similar to the Communications Hubs.
- 47.3 Before disposing of any Communications Hub, the Contractor shall:
- 47.3.1 ensure that all Data residing on the Communications Hub has been permanently erased in accordance with HMG Information Assurance Standard No. 5 (Secure Sanitisation of Protectively Marked or Sensitive Information); and
- 47.3.2 ensure that the SMWAN module component of the Communications Hub is disabled or destroyed such that it cannot connect to the SMWAN or any other communications network.
- 47.4 By no later than thirty (30) days after the end of each Contract Year, the Contractor shall give the DCC a certificate (signed by an authorised representative of the Contractor) certifying that all disposals of Communications Hubs by the Contractor during the previous Contract Year have been fully compliant with the requirements of this paragraph 47.
- 47.5 For the avoidance of doubt, the Contractor's compliance with its obligations under this paragraph 47 may be subject of an audit in accordance with Schedule 2.5 (Security Management Plan) and/or Schedule 8.4 (Records and Audit Provisions).
48. **PRODUCT SAFETY**
- 48.1 The Contractor, DCC Service Users and/or the DCC are required to comply with certain obligations under the General Product Safety Regulations 2005 (or other applicable Laws) in relation to ensuring the safety of the Communications Hubs supplied by the Contractor under this Schedule 11 (the "**Product Safety Obligations**"). The Product Safety Obligations may include the following:
- 48.1.1 ensuring that a Communications Hub is not installed at a Consumer Premises unless it is safe;

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- 48.1.2 providing Consumers with the relevant information to enable such Consumers to assess any risks inherent in a Communications Hub (where such risks are not immediately obvious without adequate warnings) and to take precautions against those risks;
 - 48.1.3 adopting measures to take appropriate action to avoid risks to safety, including, where necessary:
 - 48.1.3.1 adequately and effectively warning Consumers as to the risks;
 - 48.1.3.2 the withdrawal; and
 - 48.1.3.3 the recall,of the Communications Hubs that have been installed at Consumer Premises;
 - 48.1.4 notifying the applicable Regulatory Bodies if any Communications Hubs which have been installed at Consumer Premises pose potential safety risks to Consumers; and
 - 48.1.5 co-operating with the applicable Regulatory Bodies in relation to any action taken to avoid any risks posed by the Communications Hubs.
- 48.2 Accordingly, without limiting the Contractor's other obligations under this Agreement, the Contractor shall (and shall procure that any relevant Contractor Person will):
- 48.2.1 immediately notify the DCC if it becomes aware of any evidence or other information that any Communications Hub may not be safe or may otherwise pose any risks to Consumers;
 - 48.2.2 maintain appropriate, up-to-date and accurate records of all Communications Hubs that have been installed pursuant to this Schedule 11 so as to enable, amongst other things, the identification of the Consumer Premises at which the applicable Communications Hubs were installed by the DCC and the prompt recall of any Communications Hub (or Communications Hub Variants) by the relevant DCC Service Users;
 - 48.2.3 keep a register of complaints concerning the safety of the Communications Hubs;
 - 48.2.4 where it is reasonable to do so, conduct sample testing and monitoring of the Communication Hubs and keep the DCC informed of the results of such monitoring where the Communications Hubs present (or may present) a risk;
 - 48.2.5 prepare and maintain a corrective action plan in relation to the safety of the Communications Hubs;

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- 48.2.6 implement (where applicable) a corrective action plan in relation to the safety of the Communications Hubs, including:
 - 48.2.6.1 undertaking appropriate risk assessments to determine the safety of the Communications Hubs; and/or
 - 48.2.6.2 take appropriate corrective action where necessary (which may include a product recall of the relevant Communications Hubs);
- 48.2.7 promptly provide any co-operation, documentation, data, information or other assistance reasonably requested by the DCC (whether for itself or on behalf of any DCC Service User) from time to time in relation to compliance by such persons with their Product Safety Obligations (including the specific activities referred to in paragraph 48.1); and
- 48.2.8 ensure that appropriate representatives of the Contractor (or, where applicable, any Contractor Person), including any representatives specifically identified by the DCC, attend any meetings with the DCC or any DCC Service User that are reasonably requested by the DCC from time to time in relation to compliance by such persons with their Product Safety Obligations (including the specific activities referred to in paragraph 48.1).

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PART J – WARRANTIES, INDEMNITIES AND LIABILITY

49. WARRANTIES

General

49.1 The Contractor represents, warrants and undertakes that each Communications Hub supplied by it under this Schedule 11 shall, during the applicable Warranty Period:

49.1.1 conform in all respects with, and operate in all respects in accordance with:

49.1.1.1 the CHDS; and

49.1.1.2 each of the Communications Hubs Requirements (including all physical, functional, interface, data and security requirements specified in the Communications Hubs Requirements);

49.1.2 be of satisfactory quality;

49.1.3 be fit for any purpose referred to in:

49.1.3.1 the CHDS; or

49.1.3.2 any of the Communications Hub Requirements;

49.1.4 be free from any defect in design, material, manufacture or workmanship;

49.1.5 comply with the Certified version of the relevant Communications Hub Variant, as further described in Part C of this Schedule 11; and

49.1.6 be Date Compliant.

49.2 The expiry of the Warranty Period in relation to any Communications Hub shall not relieve the Contractor of any liability or other obligation under this Schedule 11 regarding the subsequent occurrence of a Contractor Fault in relation to the relevant Communications Hub.

49.3 The Contractor represents, warrants and undertakes that each Communications Hub supplied by it under this Schedule 11 shall free from any lien, charge, mortgage, reservation of title, encumbrance or other adverse interest of any nature which would adversely affect, in any way, the exercise of any of the DCC's rights under this Agreement in respect of the Communications Hubs (including its rights under Schedule 8.5 (Exit)).

49.4 The Contractor shall not be liable in respect of any failure by a Communications Hub to comply with paragraph 49.1.1 to the extent that such failure is caused by a DCC Fault.

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Modifications

49.5 The Contractor represents, warrants and undertakes that any Modification of any software (including firmware) which is installed or embedded on, or supplied with, the Communications Hubs shall:

49.5.1 not degrade the functionality or performance of that software in any way; and

49.5.2 unless otherwise agreed with the DCC in writing, not result in the Contractor being in breach of any provision of paragraph 49.1.

Intellectual Property Rights

49.6 The Contractor represents, warrants and undertakes that:

49.6.1 the design, manufacturing, supply and disposal of Communications Hubs by the Contractor;

49.6.2 the installation, operation, maintenance and use of Communications Hubs by the DCC, the Installer, the DCC Service Users, the SEC Parties and/or Consumers; and/or

49.6.3 the grant or exercise of any licence of any Intellectual Property Rights under this Agreement relating to the Communications Hubs (including under Appendix 5.1 (IPR – Communications Hubs)),

will not infringe the Intellectual Property Rights of any person.

Vendor warranties

49.7 To the extent that any Communications Hub Variants, or any component (including any software or firmware) of the Communications Hub Variants, is manufactured, supplied or licensed by a third party (each, a "**Relevant Supplier**"), the Contractor shall:

49.7.1 procure that the Relevant Supplier provides representations and warranties relating to such Communications Hub Variants, or components, on substantially the same terms as this paragraph 49 (each, a "**Vendor Warranty**");

49.7.2 take all necessary steps to ensure that:

49.7.2.1 each Vendor Warranty is fully in force for the benefit of the DCC and the relevant DCC Service Users; and

49.7.2.2 the DCC and the relevant DCC Service Users are able to enforce each Vendor Warranty directly against the Relevant Supplier independently of the Contractor;

49.7.3 obtain and maintain any accreditation required by the Relevant Supplier where such accreditation is required to ensure the validity of any Vendor Warranty;

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49.7.4 not take any steps, or fail to take any steps, which could invalidate or otherwise adversely affect the ability of the DCC or the relevant DCC Service Users to enforce any Vendor Warranty directly against the Relevant Supplier (including any failure by the Contractor to comply with the terms of the applicable Vendor Warranty); and

49.7.5 provide any information or assistance reasonably requested by the DCC in relation to the enforcement of any Vendor Warranty directly against the Relevant Supplier.

Malicious Software

49.8 The parties shall comply with their respective obligations, and may exercise their respective rights, under Clauses 54.2 to 54.5 in respect of the Communications Hubs.

50. INDEMNITY

Product liability indemnity

50.1 The Contractor shall, on demand, indemnify and keep the DCC indemnified at all times against any Loss incurred by the DCC and/or any DCC Service User in connection with (i) any loss of, or damage to, property and/or (ii) any death or personal injury which arises in respect of any failure by any of the Communications Hubs to comply with:

50.1.1 the requirements of this Agreement, including the Communications Hub Requirements and/or the requirements of paragraph 49 (Warranties); or

50.1.2 the general safety requirement under the General Product Safety Regulations 2005 (or other applicable Laws),

except to the extent that any liability of the Contractor under this paragraph 50.1 arises as the result of a DCC Fault.

Product safety indemnity

50.2 The Contractor shall, on demand, indemnify and keep the DCC indemnified at all times against any Loss incurred by the DCC and/or any DCC Service User in connection with:

50.2.1 any corrective action taken by the DCC and/or any DCC Service User (including any withdrawal or recall activities); and/or

50.2.2 notifying or warning Consumers of any corrective action taken by the DCC and/or any DCC Service User (and providing Consumers with relevant information regarding such corrective action),

as a result of any of the Communications Hubs failing to comply with the general safety requirement under the General Product Safety Regulations 2005 (or other applicable Laws), except to the extent that any liability of the Contractor under this paragraph 50.2 arises as the result of a DCC Fault.

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Other indemnities

50.3 The parties acknowledge and agree that the other indemnities set out in this Agreement shall apply in relation to the design, manufacturing, supply and disposal of Communications Hubs by the Contractor in accordance with this Schedule 11, provided that Clause 52.8.3 shall also apply in relation any fines, charges, penalties or other punitive amounts imposed on any DCC Service User as a result of any breach by the Contractor of this Schedule 11.

51. **LIMITATIONS ON LIABILITY**



52. **INSURANCE**

The Contractor shall comply with its obligations under Schedule 2.6 (Insurance) regarding the maintenance of relevant insurances (including product liability insurance) in relation to the design, manufacturing, supply and disposal of Communications Hubs under this Schedule 11.

PART K – TERMINATION AND EXIT

53. TERMINATION OF WORK PACKAGE

53.1 The parties acknowledge that:

53.1.1 the provisions of Clause 60 regarding Partial Termination and the termination of Work Packages shall apply to this Schedule 11 in accordance with paragraph 1.1 of Part A of this Schedule 11;

53.1.2 where applicable, Clause 60.2.2 (Termination Rights) may apply in relation to this Work Package regarding a failure by the Contractor to achieve the Key Milestones applicable to this Schedule 11; and

53.1.3 where applicable, Clause 60.2.5 (Termination Rights) may apply in relation to this Work Package regarding a Critical Service Failure in respect of the Performance Measures set out in Appendix 2.2.

54. EXIT MANAGEMENT

The parties shall comply with their respective obligations, and may exercise their respective rights, under Schedule 8.5 (Exit) in relation to the termination of this Work Package (including as a result of the expiry or termination of the Agreement as a whole).

55. CONSEQUENCES OF TERMINATION OF WORK PACKAGE

55.1 Where this Work Package is terminated for any reason (including as a result of the expiry or termination of the Agreement as a whole):

55.1.1 the Communications Hubs Charges shall cease to apply in accordance with Schedule 7.1 (Charges and Payment);

55.1.2 the DCC may immediately terminate, by written notice to the Contractor and without liability to the Contractor, any Order (in whole or in part) which has not been completely fulfilled by the date on which the termination of this Work Package takes effect (each an "**Unfulfilled Order**") (except where the DCC elects to have the Communications Hubs transferred to the DCC or a Replacement Contractor in accordance with Schedule 8.5 (Exit), in which case, all Communications Hubs under any Unfulfilled Order(s) which have already been delivered by the Contractor by the date on which the termination of this Work Package takes effect shall be transferred in accordance with Schedule 8.5 (Exit), including any payment obligations on the DCC); and

55.1.3 if requested by the DCC, the Contractor shall, as soon as reasonably practicable (but, in any event, within 30 days) after receipt of a notice from the DCC under this paragraph 55.1.3, collect any Communications Hubs from the Delivery Location specified by the DCC which have been delivered by the Contractor but have not been installed at Consumer Premises.

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55.2 The following provisions of this Schedule 11 shall (along with any other provision of this Schedule 11 that is expressed or implied to survive or otherwise required to give effect to such termination or the consequences of such termination) survive the termination of this Work Package for any reason (including as a result of the expiry or termination of the Agreement as a whole) and continue thereafter:

Provision/Appendix	Scope
Paragraph 3	Definitions and interpretation
Paragraphs 49.1, 49.3, 49.4, 49.5 and 49.6	Warranties
Paragraph 50	Indemnity
Paragraph 51	Limitations on Liability
Paragraph 52	Insurance
Part K	Termination and Exit
Paragraph 56	Intellectual Property Rights
Appendix 1	Definitions – Communications Hub
Appendix 5.1	Intellectual Property Rights – Communications Hub

PART L – MISCELLANEOUS

56. INTELLECTUAL PROPERTY RIGHTS

56.1 The parties shall comply with their respective obligations, and may exercise their respective rights, under Appendix 5.1 (IPR – Communications Hubs).

57. SUPPLY CHAIN RIGHTS

The Contractor may only sub-contract any of its obligations under this Schedule 11 in accordance with Clause 36 (Supply Chain Rights) and Schedule 4.3 (Sub-contractors).

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**APPENDIX 1
DEFINITIONS – COMMUNICATIONS HUB**

In this Schedule 11:

"Batch"	has the meaning given in paragraph Error! Reference source not found. of Part H of this Schedule 11;
"Certification Assessment"	means an assessment by a Certification Body of each Communications Hub Variant, as further described in paragraph 13 of Part C of this Schedule 11;
"Certification Assessment Plan"	has the meaning given in paragraph 16.1 of Part C of this Schedule 11;
"Certification Body"	means the body conducting a Certification Assessment, as further described in paragraph 14 of Part C of this Schedule 11;
"Certification Report"	has the meaning given in paragraph 18.1 of Part C of this Schedule 11;
"Certified"	has the meaning given in paragraph 19.1 of Part C of this Schedule 11;
"CHDS"	means the document titled " <i>Communications Hub Detailed Specification</i> " to be developed by the Contractor in accordance with Part B of this Schedule 11 and Schedule 6.3 (Development Process), as may be amended from time to time in accordance with the Change Control Procedure;
"CHTS"	means the Communications Hub Technical Specification, as further described in Schedule 6.3 (Development Process);
"Communications Hub"	has the meaning given in Part C of Schedule 1 (Interpretation and Definitions);
"Communications Hub Documents"	has the meaning given in Part B of Schedule 6.3 (Development Process);
"Communications Hub Handover Support Materials" or "CHHSM"	means the document titled " <i>Communications Hub Handover Support Materials</i> " to be developed by the Contractor in accordance with Part B of this Schedule 11 and Schedule 6.3 (Development Process), as may be amended from time to time in accordance with the Change Control Procedure;
"Communications Hub Installation Process Support Materials" or	means the document titled " <i>Communications Hub Installation Process Support Materials</i> " to be developed by the Contractor in accordance with Schedule 6.3 (Development Process), as may be amended from time to

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"CHIPSM"	time in accordance with the Change Control Procedure;
"Communications Hub Laws/Standards"	has the meaning given in paragraph 7 of Part B of this Schedule 11;
"Communications Hub Maintenance Support Materials" or "CHMSM"	means the document titled " <i>Communications Hub Maintenance Support Materials</i> " to be developed by the Contractor in accordance with Schedule 6.3 (Development Process), as may be amended from time to time in accordance with the Change Control Procedure;
"Communications Hub Requirements"	means: (a) the Communications Hub Specifications; and (b) the Communications Hub Laws/Standards;
"Communications Hub Specifications"	has the meaning given in paragraph 7 of Part B of this Schedule 11;
"Communications Hub Termination Table"	means the "Communications Hub Termination Table" as set out in the Financial Model;
"Communications Hub Variant"	means each variant of the Communications Hub required to be supplied by the Contractor under this Schedule 11, including each combination of: (a) a HAN Variant; and (b) a WAN Variant, as further described in Appendix 4.1;
"Contractor Batch Fault Rate Payment"	has the meaning given in paragraph Error! Reference source not found. of Part H of this Schedule 11;
"Contractor Fault"	has the meaning given in paragraph 40.3 of Part H of this Schedule 11;
"Contractor Batch Fault Rate"	has the meaning given in paragraph Error! Reference source not found. of Part H of this Schedule 11;
"DCC Fault"	has the meaning given in paragraph 40.2 of Part H of this Schedule 11;
"DCC Forecast"	has the meaning given in paragraph 23.1 of Part D of this Schedule 11;
"DCC Service Management System"	means the DCC's service management system as further described in Schedule 2.1 (DCC Requirements);

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" Delivery Date "	has the meaning given in paragraph 24.5.2 of Part D of this Schedule 11;
" Delivery Documentation "	has the meaning given in paragraph 35 of Part F of this Schedule 11;
" Delivery Location "	means the distribution centres of the relevant DCC Service Users to which Communications Hubs are to be delivered by the Contractor under this Schedule 11, as further described in paragraph 32;
" Delivery Month "	has the meaning given in paragraph 24.3.1 of Part D of this Schedule 11;
" Fault "	has the meaning given in paragraph 40.1 of Part H of this Schedule 11;
" Fault Analysis Report "	has the meaning given in paragraph 44.5 of Part H of this Schedule 11;
" GB Companion Specification "	means the GB Companion Specification, as further described in Schedule 6.3 (Development Process);
" General Contractor Fault Rate "	has the meaning given in paragraph Error! Reference source not found. of Part H of this Schedule 11;
" General Contractor Fault Rate Payment "	has the meaning given in paragraph Error! Reference source not found. of Part H of this Schedule 11;
" HAN Variant "	means the 2.4 GHz HAN variant of the Communications Hub required to be supplied by the Contractor under this Schedule 11, as further described in Appendix 2.1 (and any other HAN variants agreed with the DCC);
" ICHIS "	means the document titled " <i>Intimate Communications Hub Interface Specification</i> " to be developed by the Contractor and the other Prime CSP in accordance with Part B of this Schedule 11 and Schedule 6.3 (Development Process), and the Co-operation Agreement with the other Prime CSP, as may be amended from time to time in accordance with the Change Control Procedure;
" ICHIS Development Report "	has the meaning given in paragraph 5.2 of Part B of this Schedule 11;
" Initial Delivery Month "	has the meaning given in paragraph 23.2.1 of Part D of this Schedule 11;
" Installer "	means the person installing a Communications Hub at Consumer Premises on behalf of the relevant DCC Service

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	User;
"Lost/Stolen Communications Hub"	has the meaning given in paragraph 40.5.1 of Part H of this Schedule 11;
"month"	has the meaning given in Schedule 1 (Interpretation and Definitions) and, for the avoidance of doubt, means a calendar month for the purposes of this Schedule 11;
"No Fault Found"	has the meaning given in paragraph 40.4 of Part H of this Schedule 11;
"No Fault Removal"	has the meaning given in paragraph 40.5.2 of Part H of this Schedule 11;
"Order"	means an order issued by the DCC in accordance with paragraph 24 of Part D of this Schedule 11 for the delivery of Communications Hubs;
"Order Management System"	has the meaning given in paragraph 25 of Part D of this Schedule 11;
"Returns Location"	means a Site to which Faulty Communications Hubs are to be returned to the Contractor by the relevant DCC Service User under paragraph 43 of Part H of this Schedule 11, as set out in the CHMSM;
"WAN Variant"	means the following WAN variants of the Communications Hub to be supplied by the Contractor under this Schedule 11: <ul style="list-style-type: none">(a) the cellular WAN Variant; and(b) the cellular + RF mesh WAN Variant, each as further described in Appendix 4.1;
"Warranty Period"	means, in relation to any Communications Hub, the period between: <ul style="list-style-type: none">(a) the date on which completion of delivery of the Communications Hub occurs (as determined in accordance with paragraph 33.3 and the CHHSM); and(b) the end of the Initial Term.

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**APPENDIX 2.1
DCC REQUIREMENTS – COMMUNICATIONS HUBS**

1. Introduction

This Appendix 2.1 summarises the requirements for the Communications Hub Detailed Specification (CHDS) that are additional to the CHTS under the following headings:

- (a) transaction volumes;
- (b) memory requirements;
- (c) physical requirements;
- (d) ingress protection;
- (e) operating temperature range;
- (f) maximum power consumption;
- (g) power supply arrangements;
- (h) power outage management;
- (i) physical security requirements;
- (j) firmware management;
- (k) interface commands and logical security; and
- (l) environmental requirements.

2. Transaction volumes

Each Communications Hub Variant shall be capable of processing at least the number, profile and typical size of transactions set out in volume scenario (E) Very High Demand, as contained within the Financial Model.

3. Memory requirements

3.1 Each Communications Hub Variant shall provide sufficient volatile and non-volatile memory to support the "CHTS Storage Size", defined as memory to support the functionality set out in CHTS at the transaction volumes set out in volume scenario (E) Very High Demand, as contained within the Financial Model. This includes:

- (a) a firmware image store capable of simultaneously storing:
 - (i) two (2) firmware images used by Type 1 devices as defined in SMETS on the HAN of up to 750KB size;
 - (ii) one (1) Communications Hub firmware image; and

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- (iii) one (1) Gas Proxy firmware image (storage of Gas Proxy firmware image is only required if the Contractor Solution implements the Gas Proxy with separate firmware);
 - (b) event and security log stores capable of supporting the requirements set out in the CHTS;
 - (c) an inbound buffer capable of supporting the requirements set out in the CHTS; and
 - (d) an outbound buffer capable of supporting the requirements set out in the CHTS.
- 3.2 Each Communications Hub Variant shall be able to support an increase of at least 100% in the CHTS Storage Size.
- 3.3 Each Communications Hub Variant shall provide sufficient volatile and non-volatile memory to support its internal operation.
- 4. **Physical requirements**
- 4.1 Each Communications Hub Variant with an intimate interface shall comply with the physical requirements specified in the ICHIS.
- 4.2 Each Communications Hub Variant shall align with the dimensions for the Communications Hub specified in the ICHIS.
- 4.3 Each Communications Hub Variant shall be constructed from materials that comply with the thermal and mechanical industry strength standards specified for a typical electricity Smart Meter in BS EN 50470-1.
- 4.4 Each Communications Hub Variant shall be suitable for installation and satisfactory operation in a typical electricity meter environment:
 - (a) in a standard form meter box in an internal or external location; and/or
 - (b) on an exposed backboard in an internal location.
- 4.5 Each Communications Hub Variant shall be suitably ratified and certified against relevant standards including:
 - (a) insulation/ isolation voltage;
 - (b) voltage shock;
 - (c) short circuit current; and
 - (d) electro-magnetic compatibility (EMC).

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5. **Ingress protection**

Each Communications Hub Variant shall achieve a rating of IP53 once fitted to the electricity Smart Meter as specified in the ICHIS.

6. **Operating temperature range**

Each Communications Hub Variant shall remain operational in ambient temperatures from -20°C to $+55^{\circ}\text{C}$.

7. **Maximum power consumption**

Each Communications Hub Variant shall not consume more than an average of 1 watt of power under the conditions set out in volume scenario (B) Expressed Demand, as contained within the Financial Model.

8. **Power supply arrangements**

Each Communications Hub Variant shall use a DC power supply that conforms to the requirements for power supply specified in the ICHIS.

9. **Power outage management**

9.1 Each Communications Hub Variant shall support (as necessary) the compliance of the Contractor Solution with the requirements relating to power outage management in Schedule 2.1 (DCC Requirements) and the requirements set out in the CHTS.

9.2 Depending on the Contractor Solution, this may require that each Communications Hub Variant is capable of continued operation in the absence of mains power for a period necessary to successfully initiate the specified power outage notification to the DCC. Each Communications Hub Variant shall be capable of managing charging of high capacity energy storage if used in the Contractor Solution.

10. **Physical security requirements**

10.1 Each Communications Hub Variant with an intimate interface shall conform to the physical security requirements defined in the CHTS and any further requirements specified in the ICHIS.

10.2 The combination of the Smart Meter and the Communications Hub shall have a secure perimeter, implemented through a tamper switch and a security seal.

11. **Firmware management**

11.1 Each Communications Hub Variant shall:

- (a) provide a firmware image store capable of simultaneously storing:
 - (i) two (2) firmware images used by Type 1 devices as defined in SMETS on the HAN of up to 750KB size;

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- (ii) one (1) Communications Hub firmware image; and
 - (iii) one (1) Gas Proxy firmware image (storage of Gas Proxy firmware image is only required if the Contractor Solution implements the Gas Proxy with separate firmware);
 - (b) supports firmware updates addressed to Type 1 devices on the HAN and forwards the firmware update via the HAN to the respective HAN Device.
- 11.2 Each Communications Hub Variant shall:
- (a) provide a firmware image store capable of storing Communications Hub firmware;
 - (b) verify firmware images;
 - (c) install and activate firmware images; and
 - (d) restore data and settings after upgrade.

12. **Interface commands and logical security**

- 12.1 Each Communication Hub Variant shall support logical separation between Interface Command functions such that:
- (a) the Contractor shall be prevented from independently issuing Critical Commands;
 - (b) the Contractor shall be prevented from executing Gas Proxy Management Interface Commands, as specified in the CHTS; and
 - (c) the Gas Proxy logical entity shall have its own identity and private security credentials. In particular:
 - (i) it shall have cryptographic facilities to make sure sensitive data it holds is confidential to only itself, local devices it is authorised to communicate with and remote parties it is authorised to communicate with; and
 - (ii) Gas Proxy operational data shall be protected from malicious or accidental corruptions.
- 12.2 To meet the requirements for logical separation, each Communications Hub Variant shall implement Role-Based Access Controls which limit access to Interface Commands in a way capable of supporting the indicative access controls in Annex D of this Appendix 2.1.
- 12.3 In addition to the indicative requirements set out in Annex D of this Appendix 2.1, the Contractor shall also implement Role-Based Access Controls that provide a mechanism for any Communications Hub command functionality to be subject to verification and/or explicit approval by the DSP, prior to execution, if that command:

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- (a) is capable of disabling SMWAN functionality directly on the Communications Hub; and
- (b) is not capable of being reversed remotely by the Contractor.

13. **Environmental requirements**

Each Communications Hub Variant shall comply with:

- (a) ICNIRP guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields; and
- (b) European Council Recommendation (EC 519/1999) on the limitation of exposure of the general public to electromagnetic fields.

xxxAnnex A to Appendix 2.1
Not used

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**Annex B to Appendix 2.1
Not used**

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**Annex C to Appendix 2.1
ICHIS requirements**

This Annex C sets out certain requirements in relation to the physical, electrical and data interface between:

- (a) the Communications Hub (which shall incorporate the "male" components of the intimate interface); and
- (b) the electricity Smart Meter (or, where applicable, the "hot shoe") (which shall incorporate the "female" components of the intimate interface).

This Annex C applies to both the "male" and "female" components of the intimate interface. The interface requirements are set out below.

1. General interface requirements

- 1.1 The interface shall be based on open standards as defined in SMETS.
- 1.2 The interface shall allow for ease of installation including situations where the interface is not visible to an Installer.

2. Physical interface requirements

- 2.1 The interface shall have a common form factor for its connector.
- 2.2 The interface shall have a common form factor for its mating surfaces.
- 2.3 The interface shall have a consistent mating force for manual installation without the need for any tools.
- 2.4 The interface shall have an anti-tamper mechanism and a security seal.
- 2.5 The interface shall have a locking mechanism to attach to the Communications Hub.

3. Electrical interface requirements

- 3.1 The interface shall provide a separate DC power connector.
- 3.2 The interface shall include an identified, separate AC power connector. The AC power connector shall be left un-terminated in the Communications Hub.
- 3.3 The interface shall include protection for the attached devices.

4. Data interface requirements

- 4.1 The interface shall include identified data connectors for:
 - (a) HAN power line communications;
 - (b) WAN power line communications; and

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(c) Communications Hub to ESME communication.

4.2 These connectors will be left un-terminated in the Communications Hub.

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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]			[REDACTED]	[REDACTED]
			[REDACTED]	[REDACTED]	[REDACTED]		
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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APPENDIX 2.2



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APPENDIX 4.1
CONTRACTOR SOLUTION – COMMUNICATIONS HUBS

The parties have agreed that the Signature Date Contractor Solution in relation to Communications Hubs (as referred to in Schedule 12 (Completion Documents)) is incorporated and attached here by reference.

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APPENDIX 5.1
INTELLECTUAL PROPERTY RIGHTS – COMMUNICATIONS HUBS

1. IPR Indemnity

1.1 To the extent that an IPR Claim under Clause 57 occurs and relates in any way to any Communications Hub Variant, then, in exercising its rights under Clause 57.7:

(a) where Clause 57.7.1 applies, the Contractor shall (in addition to its obligations under Clause 57.7.1) procure for all Consumers affected by the IPR Claim the right to continue to Use the Infringing Item on terms that are no less beneficial to those Consumers than the terms on which the Infringing Item was originally made available to them; or

(b) where Clause 57.7.2.2 applies, the Contractor shall (in addition to its obligations under Clause 57.7.2.2) ensure that any replaced or modified substitute for the Infringing Item does not have an adverse effect or impact on any Consumers affected by the IPR Claim.

2. Contractor IPR

2.1 To the extent necessary for Consumers to use and interact with:

(a) any part of the Smart Metering System; and/or

(b) any Smart Appliance,

in the manner envisaged by the Smart Metering Programme, any licence of the Contractor IPR (including, for the avoidance of doubt, any Third Party Software) which is granted (or to be procured) under Schedule 5.1 (Intellectual Property Rights) shall also be granted to Consumers.

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