\$1 - PRECEDENT CONTRACT FOR THE PURCHASE OF SERVICES

SECTION A

This Contract is dated Tuesday, 15th October 2019.

Parties

- (1) Department for Business, Energy and Industrial Strategy (BEIS), 1 Victoria Street London (The Contracting Authority).
- (2) University of Cambridge, The Old Schools, Trinity Lane, Cambridge, England, CB2 1TN (the Supplier).

Background

The Contracting Authority wishes the Supplier to supply, and the Supplier wishes to supply, the Services (as defined below) in accordance with the terms of the Contract (as defined below).

A1 Interpretation

A1-1 Definitions. In the Contract (as defined below), the following definitions apply:

Agent: Where UK Shared Business Services is not the named Contracting Authority is Parties (1), UK SBS has been nominated as agent on behalf of the Contracting Authority and therefore all communications both written and verbal will be received as issued by the Contracting Authority.

Associated Bodies and Authorised Entities: Associated Bodies and Authorised Entities Include but are not limited to The Science and Technology Facilities Council, The Medical Research Council, The Engineering and Physical Sciences Research Council, The Economic and Social Research Council, The Natural Environment Research Council, The Arts and Humanities Research Council, The Biotechnology and Biological Sciences Research Council, UK SBS Ltd, Central Government Departments and their Agencies, Non Departmental Public Bodies, NHS bodies, Local Authority's, Voluntary Sector Charities, and/or other private organisations acting as managing agents or procuring on behalf of these UK bodies. Further details of these organisations can be found at: http://www.ukabs.co.uk/services/procure/contracts/Pages/default.aspx

Business Day: a day (other than a Saturday, Sunday or public holiday) when banks in London are open for business.

Charges: the charges payable by the Contracting Authority for the supply of the Services in accordance with clause B4.

Commencement: the date and any specified time that the Contract starts

Conditions: the terms and conditions set out in this document as amended from time to time in accordance with clause C7-11.

Confidential Information: any confidential Information, knowhow and data (in any form or medium) which relates to UK SBS, the Contracting Authority or the Supplier, including information relating to the businesses of UK SBS, the Contracting Authority or the Supplier and information relating to their staff, finances, policies and procedures. This includes information identified as confidential in the Order or the Special Conditions (if any).

Contract: the contract between the Contracting Authority and the Supplier for the supply of the Services, in accordance with these Conditions, any Special

Conditions and the Order only.

Contracting Authority: Department for Business, Energy and Industrial Strategy (BEIS), as specified at Section A (1) and any replacement or successor organisation.

Delivery Date (Services): the date or dates specified in the Order when the Services shall commence as set out in the Order and until the end date specified in the Order

Deliverables: all Documents, products and materials developed by the Supplier or its agents, contractors and employees as part of or in relation to the Services in any form, including computer programs, data, reports and specifications (including drafts).

Document: Includes, in addition to any document in writing, any drawing, map, plan, diagram, design, picture or other image, tape, disk or other device or record embodying information in any form.

EIR: The Environmental Information Regulations 2004 together with any guidance and/or codes of practice issues by the Information Commissioner or relevant government department in relation to such regulations.

FOIA: The Freedom of Information Act 2000 and any subordinate legislation made under the Act from time to time, together with any guidance and/or codes of practice issued by the information Commissioner or relevant government department in relation to such legislation.

Information: has the meaning given under section 84 of FOIA.

Intellectual Property Rights: all patents, rights to inventions, utility models, copyright and related rights, trademarks, service marks, trade, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, detabase right, topography rights, rights in confidential information (including know-how and trade secrets) and any other intellectual property rights, in each case whether registered or unregistered and including all applications for and renewals or extensions of such rights, and all similar or equivalent rights or forms of protection in any part of the world.

Order: the Contracting Authority's order for the Services, as set out in the Contracting Authority's completed purchase order form (including any Specification) which is in the format of the pro forma order form attached at Schedula 2. For the avoidance of doubt, if the Contracting Authority's purchase order form is not in the format of the pro forma order form at Schedule 2, it will not constitute an Order.

Public Body: any part of the government of the United Kingdom including but not limited to the Northern Ireland Assembly and Executive Committee, the Scottish Executive and the National Assembly for Wales, local authorities, government ministers and government departments and government agencies.

Request for information: a request for information or an apparent request under FOIA or EIR.

Scheme Effective Date: the date on which the United Kingdom Research and Innovation become a legal entity.

Services: The Services, including without limitation any Deliverables, Deliverables and Supplies required to complete the Services, to be provided by the Supplier under the Contract as set out in the Order.

Special Conditions: the special conditions (if any) set out in Schedule 1.

Specification: any specification for the Services or Supplies, including any related plans and drawings that is supplied to the Supplier by the Contracting Authority, or produced by the Supplier and agreed in writing by the Contracting Authority.

Supplier or Suppliers: the parties to the contract as named in Section A (2).

Supplies: any such thing that the Supplier is required to Deliver, that does not require or include Services or Deliverables

Supplier's Associate: any individual or entity associated with the Supplier including, without fimitation, the Supplier's subsidiary, effiliated or holding companies and any employees, agents or contractors of the Supplier and / or its subsidiary, affiliated or holding companies or any entity that provides Services for or on behalf of the Supplier.

TUPE: The Transfer of Undertakings (Protection of Employment) Regulations 2006 as amended or replaced from time to time.

UKRI: UK Research Council and Innovation, established as a body corporate in accordance with the Higher Education and Research Act 2017.

UK SBS: UK Shared Business Services Limited (a limited company registered in England and Wales with company number 06330639). Where UK SBS is not named as the Contracting Authority within section A (1), UK SBS will be acting as an agent on behalf of the Contracting Authority.

Working Day: any Business Day excluding 27, 28, 29, 30 and 31 December in any year.

- A1-2 Construction. In the Contract, unless the context requires otherwise, the following rules apply:
 - A1-2-1 A **person** includes a natural person, corporate or unincorporated body (whether or not having separate legal personality).
 - A1-2-2 A reference to a party includes its personal representatives, successors or permitted assigns.
 - A1-2-3 A reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted.
 - A1-2-4 Any phrase introduced by the terms Including, Include, In particular or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.
 - A1-2-5 The headings in these Conditions are for ease of reference only and do not affect the interpretation or construction of the Contract.
 - A1-2-6 A reference to writing or written includes faxes and e-mails.

A2 Basis of contract

- A2-1 Where UK SBS is not the Contracting Authority, UK SBS is the agent of the Contracting Authority for the purpose of procurement and is authorised to negotiate and enter into contracts for the supply of Services on behalf of the Contracting Authority. UK SBS will not itself be a party to, nor have any liability under, the Contract unless it is expressly specified as Contracting Authority in the Order.
- A2-2 The terms of this Contract, any Special Conditions and the Order apply to the Contract to the exclusion of all other terms and conditions, including any either terms that the Supplier seeks to impose or incorporate (whether in any quotation, confirmation of order, in correspondence or in any other context), or which are

- Implied by trade, custom, practice or course of dealing.
- A2-3 If there is any conflict or inconsistency between the terms of this Confract, the Special Conditions (if any) and the Order (including any Specification), the terms of the Confract will prevail over the Special Conditions and the Special Conditions will prevail over the Order (including any Specification), in each case to the extent necessary to resolve that conflict or inconsistency.
- A2-4 The Order constitutes an offer by the Contracting Authority to purchase the Services in accordance with this Contract (and any Special Conditions). This offer shall remain valid for acceptance by the Supplier, in accordance with clause A2-5, for 28 days from the date of the Order. Notwithslanding that after 28 days the offer will have expired, the Contracting Authority may, at its discretion, nevertheless treat the offer as still valid and may elect to accept acceptance by the Supplier, in accordance with clause A2-5, as valid acceptance of the offer.
- A2-5 Subject to clause A2-4, the Order shall be deemed to be accepted on the date on which authorised representatives of both parties have algred a copy of this Contract, at which point the Contract shall come into existence. The Contract shall remain in force until all the parties' obligations have been performed in accordance with the Contract, at which point it shall expire, or until the Contract has been terminated in accordance with clause A3.

A3 Termination

- A3-1 The Contracting Authority or UK SBS acting as an agent on bahalf of the Contracting Authority may terminate the Contract in whole or in part at any time before the Services are provided with immediate effect by giving the Supplier written notice, whereupon the Supplier shall discontinue all work on the Contract. The Contracting Authority shall pay the Supplier fair and reasonable compensation for work-in-progress at the time of termination, but such compensation shall not include loss of anticipated profits or any consequential loss. The Supplier shall have a duty to mitigate its costs and shall on request provide proof of expenditure for any compensation claimed.
- A3-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may terminate the Contract with immediate effect by giving written notice to the Supplier if:
 - A3-2-1 the circumstances set out in clauses B2-1-1, C3 or C4-1 apply;
 - A3-2-2 the Supplier breaches any term of the Contract and (if such breach is remediable) falls to remedy that breach within 30 days of being notified in writing of the breach; or
 - A3-2-3 the Supplier suspends, or threatens to suspend, payment of its debts or is unable to pay its debts as they fall due or admits inability to pay its debts or (being a company) is deemed unable to pay its debts within the meaning of section 123 of the insolvency Act 1986, or (being an individual) is deemed either unable to pay its debts or as having no reasonable prospect of so doing, in either case, within the meaning of section 268 of the insolvency Act 1986, or (being a partnership) has any partner to whom any of the foregoing apply; or
 - A3-2-4 the Supplier commences negotiations with all or any class of its creditors with a view to rescheduling any of its debts, or makes a proposal for or enters into any compromise or arrangement with its creditors; or
 - A3-2-5 (being a company) a petition is filed, a notice is given, a resolution is passed, or an order is made, for or in connection with the winding up of the Supplier, or

- A3-2-6 (being an Individual) the Supplier is the subject of a bankruptcy petition or order, or
- A3-2-7 a creditor or encumbrancer of the Supplier attaches or takes possession of, or a distress, execution, sequestration or other such process is levied or enforced on or sued against, the whole or any part of its assets and such attachment or process is not discharged within 14 days; or
- A3-2-8 (being a company) an application is made to court, or an order is made, for the appointment of an administrator or if a notice of intention to appoint an administrator is given or if an administrator is appointed over the Supplier; or
- A3-2-9 (being a company) a floating charge holder over the Supplier's assets has become entitled to appoint or has appointed an administrative receiver; or
- A3-2-10 a person becomes entitled to appoint a receiver over the Supplier's assets or a receiver is appointed over the Supplier's assets; or
- A3-2-11 any event occurs, or proceeding is taken, with respect to the Supplier in any jurisdiction to which it is subject that has an effect equivalent or similar to any of the events mentioned in clause A3-2-3 to clause A3-2-10 inclusive; or
- A3-2-12 there is a change of control of the Supplier (within the meaning of section 1124 of the Corporation Tax Act 2010); or
- A3-2-13 the Supplier suspends, or threatens to suspend, or ceases or threatens to cease to carry on, all or substantially the whole of its business; or
- A3-2-14 the Supplier's financial position deteriorates to such an extent that in the Contracting Authority's opinion the Supplier's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy; or
- A3-3 Termination of the Contract, however arising, shall not affect any of the parties' rights and remedies that have accrued as at termination. Clauses which expressly or by implication survive termination or expiry of the Contract shall continue in full force and effect.
- A3-4 Without prejudice to clause A3-3, clauses B1, B2, B5, B6, B7, B8, B9, C1, C2, C3, C4, C6 and C7 shall survive the termination or expiry of the Contract and shall continue in full force and effect.
- A3-5 Upon termination or expiry of the Contract, the Supplier shall immediately:
 - A3-5-1 cease all work on the Contract;
 - A3-5-2 Deliver to the Contracting Authority all Deliverables and all work-in-progress whether or not then complete. If the Supplier falls to do so, then the Contracting Authority may enter the Supplier's premises and take possession of them. Until they have been returned or delivered, the Supplier shall be solely responsible for their safe keeping and will not use them for any purpose not connected with this Contract:
 - A3-5-3 cease use of and return (or, at the Contracting Authority's or UK SBS's acting as an agent on behalf of the Contracting Authority's election, destroy) all of the Contracting Authority's Materials in the Supplier's possession or control; and
 - A3-5-4 Cease all use of, and delete all copies of, UK SBS's or the Contracting Authority's or UK SBS's confidential Information.

SECTION B

B1 Supply of Services

- B1-1 The Supplier shall from the date set out in the Contract end until the end date specified in the Contract provide the Services to the Contracting Authority in accordance with the terms of the Contract.
- B1-2 The Supplier shall meet any performance dates for the Services (including the delivery of Deliverables) specified in the Order (including any Special Conditions and any applicable Specification) or notified to the Supplier by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.
- B1-3 In providing the Services, the Supplier shall:
 - B1-3-1 co-operate with the Contracting Authority in all matters relating to the Services, and comply with all instructions of the Contracting Authority or UK SBS acting as an egent on behalf of the Contracting Authority;
 - B1-3-2 perform the Services with reasonable skill and care and in accordance with all generally recognised commercial standards and practices for services of the nature of the Services;
 - B1-3-3 use personnel who are suitably skilled and experienced to perform tasks assigned to them, and in sufficient number to ensure that the Supplier's obligations are fulfilled in accordance with this Contract;
 - B1-3-4 ensure that the Services and Deliverables will conform with all descriptions and specifications set out in the Contract (including any Special Conditions and any applicable Specification), and that the Deliverables shall be fit for any purpose expressly or impliedly made known to the Supplier by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority;
 - B1-3-5 provide all equipment, tools and vehicles and such other items as are required to provide the Services;
 - B1-3-6 use the best quality Supplies, materials, standards and techniques, and ensure that the Deliverables, and all Supplies and materials supplied and used in the Services or transferred to the Contracting Authority, will be free from defects in workmanehip, installation and design;
 - B1-3-7 obtain and at all times maintain all necessary licences and consents, and comply with all applicable laws and regulations;
 - B1-3-8 observe all health and safety rules and regulations and any other security requirements that apply at any of the Contracting Authority's premises; and
 - B1-3-9 Not do or omit to do anything which may cause the Contracting Authority to lose any licence, authority, consent or permission on which it relies for the purposes of conducting its business, and the Supplier acknowledges that the Contracting Authority may rely or act on the Sarvices.
- The Contracting Authority's rights under the Contract are without prejudice to and in addition to the statutory terms implied in favour of the Contracting Authority under the Supply of Goods and Services Act 1982 and any other applicable legislation.
- B1-5 Without prejudice to the Contracting Authority's statutory rights, the Contracting Authority will not be deemed to have accepted any Deliverables until the Contracting Authority has had at least 14 Working Days after delivery to inspect them and the Contracting Authority also has the right to reject any Deliverables as though they had not been accepted for 14 Working Days after any latent defect in the Deliverables has become apparent.

- B:1-6 If, in connection with the supply of the Services, the Contracting Authority permits any employees or representatives of the Supplier to have access to any of the Contracting Authority's premises, the Supplier will ensure that, whilst on the Contracting Authority's premises, the Supplier's employees and representatives comply with:
 - B1-6-1 all applicable health and safety, security, environmental and other legislation which may be in force from time to time; and
 - B1-6-2 any Contracting Authority policy, regulation, code of practice or instruction relating to health and safety, security, the environment or access to and use of any Contracting Authority laboratory, facility or equipment which is brought to their attention or given to them whilst they are on Contracting Authority's premises by any employee or representative of the Contracting Authority's.
- B1-7 The Supplier warrants that the provision of Services shall not give rise to a transfer of any employees of the Supplier or any third party to the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority pursuant to TUPE.

B2 Contracting Authority Remedies

- B2-1 If the Supplier falls to perform the Services by the applicable dates, the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall, without limiting its other rights or remedies, have one or more of the following rights:
 - B2-1-1 to terminate the Contract with immediate effect by giving written notice to the Supplier;
 - B2-1-2 to refuse to accept any subsequent performance of the Services (Including delivery of Deliverables) which the Supplier attempts to make:
 - B2-1-3 to recover from the Supplier any costs incurred by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority in obtaining substitute Services from a third party;
 - B2-1-4 where the Contracting Authority has paid in advance for Services that have not been provided by the Supplier, to have such sums refunded by the Supplier; or
 - B2-1-5 To claim damages for any additional costs, loss or expenses incurred by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority which are in any way attributable to the Supplier's fallure to meet such dates.
- B2-2 These Conditions shall extend to any substituted or remedial Services provided by the Supplier.
- B2-3 The Contracting Authority's rights under this Contract are in addition to its rights and remedies implied by statute and common law.

B3 Contracting Authority Obligations

- B3-1 The Contracting Authority shall:
 - B3-1-1 provide the Supplier with reasonable access at reasonable times to the Contracting Authority's premises for the purpose of providing the Services; and
 - B3-1-2 Provide such information to the Supplier as the Supplier may reasonably request and the Contracting Authority considers reasonably necessary for

the purpose of providing the Services.

B4 Charges and Payment

- B4-1 The Charges for the Services shall be set out in the Order and shall be the full and exclusive remuneration of the Supplier in respect of the performance of the Services. Unless otherwise agreed in writing by the Contracting Authority or UK SES acting as an agent on behalf of the Contracting Authority, the Charges shall include every cost and expense of the Supplier directly or indirectly incurred in connection with the performance of the Services.
- Where the Order states that the Services are to be provided on a time and materials basis, the Charges for those Services will be calculated as follows:
 - B4-2-1 the charges payable for the Services will be calculated in accordance with the Supplier's standard daily fee rates (as at the date of the Order), subject to any discount specified in the Order;
 - B4-2-2 the Supplier's standard daily fee rates for each individual person will be calculated on the basis of an eight-hour day worked between such hours and on such days as are agreed by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority and the Supplier;
 - B4-2-3 the Supplier will not be entitled to charge pro-rate for part days without the prior written consent of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority;
 - B4-2-4 the Supplier will ensure that every individual whom it engages to perform the Services completes time sheets recording time spent on the Services and the Supplier will use such time sheets to calculate the charges covered by each invoice and will provide copies of such time sheets to the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority upon request; and
 - B4-2-5 the Supplier will invoice the Contracting Authority monthly in arrears for its charges for time, as well as any previously agreed expenses and materials for the month concerned calculated as provided in this clause B4-2 and clause B4-3
- The Contracting Authority will reimburse the Supplier at cost for all reasonable travel, subsistence and other expenses incurred by individuals engaged by the Supplier in providing the Services to the Contracting Authority provided that the Contracting Authority's prior written approval is obtained before incurring any such expenses, that all invoices for such expenses are accompanied by valid receipts and provided that the Supplier compiles at all times with Contracting Authority's expenses policy from time to time in force.
- The Supplier shall invoice the Contracting Authority on completion of the Services. Each invoice shall include such supporting information required by the Contracting Authority to verify the accuracy of the invoice, including but not limited to the relevant purchase order number.
- B4-5 In consideration of the supply of the Services by the Supplier, the Contracting Authority shall pay the Invoiced amounts within 30 days of the date of a correctly rendered invoice. Payment shall be made to the bank account nominated in writing by the Supplier unless the Contracting Authority agrees in writing to another payment method.
- B4-6 All amounts payable by the Contracting Authority under the Contract are exclusive of amounts in respect of value added tax chargeable for the time being (VAT). Where any taxable supply for VAT purposes is made under the Contract by the Supplier to the Contracting Authority, the Contracting Authority shall, on receipt of a

- valid VAT invoice from the Supplier, pay to the Supplier such additional amounts in respect of VAT as are chargeable on the supply of the Services at the same time as payment is due for the supply of the Services.
- B4-7 The Supplier shall maintain complete and accurate records of the time spent and materials used by the Supplier in providing the Services and shall allow the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority to inspect such records at all reasonable times on request.
- B4-8 The Supplier shall not be entitled to assert any credit, set-off or counterclaim against the Contracting Authority in order to justify withholding payment of any such amount in whole or in part. The Contracting Authority may, without limiting any other rights or remedies it may have, set off any amount owed to it by the Supplier against any amounts payable by it to the Supplier under the Contract.
- B4-9 The Supplier acknowledges and agrees that it will pay correctly rendered invoices from any of its suppliers or other sub-contractors within 30 days of receipt of the invoice.

B5 Contracting Authority Property

The Supplier acknowledges that all Information (Including confidential Information), equipment and tools, drawings, specifications, data, software and any other materials supplied by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority to the Supplier (Contracting Authority's Materials) and all rights in the Contracting Authority's Materials are and shall remain at all times the exclusive property of the Contracting Authority and UK SBS (as appropriate). The Supplier shall keep the Contracting Authority's Materials in safe custody at its own risk, maintain them in good condition until returned to the Contracting Authority or UK SBS, and not dispose or use the same other than for the sole purpose of performing the Supplier's obligations under the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.

B6 Intellectual Property Rights

- B6-1 In respect of any Supplies that are transferred to the Contracting Authority under this Contract, including without limitation the Deliverables or any part of them, the Supplier warrants that it has full clear and unencumbered title to all such items, and that at the date of delivery of such items to the Contracting Authority, it will have full and unrestricted rights to transfer all such items to the Contracting Authority.
- Save as otherwise provided in the Special Conditions, the Supplier essigns to the Contracting Authority, with full title guarantee and free from all third party rights, all intellectual Property Rights in the products of the Services, including for the avoidance of doubt the Deliverables. Where those products or Deliverables incorporate any Intellectual Property Rights owned by or licensed to the Supplier which are not assigned under this clause, the Supplier grants to the Contracting Authority a worldwide, irrevocable, royalty-free, transferable licence, with the right to grant aub-licences, under those intellectual Property Rights to maintain, repair, adapt, copy and use those products and Deliverables for any purpose.
- B6-3 The Supplier shall obtain walvers of all moral rights in the products, including for the avoidance of doubt the Deliverables, of the Services to which any individual is now or may be at any future time entitled under Chapter IV of Part I of the Copyright Designs and Patents Act 1988 or any similar provisions of law in any jurisdiction.
- B6-4 The Supplier shall, promptly at the request of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority, do (or procure to be done) all such further acts and things and the execution of all such other

documents as the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may from time to time require for the purpose of securing for the Contracting Authority the full benefit of the Contract, including all right, title and interest in and to the Intellectual Property Rights assigned to the Contracting Authority in accordance with clause B6-2.

B7 Indemnity

- B7-1 The Supplier shall indemnify, and shall keep indemnified the Contracting Authority and UK SBS acting as an agent on behalf of the Contracting Authority, in full against all costs, expenses, damages and losses (whether direct or indirect), including any interest, fines, legal and other professional fees and expenses awarded against or incurred or paid by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority as a result of or in connection
 - B7-1-1 any claim made against the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority by a third party arising out of, or in connection with, the supply of the Services, to the extent that such claim arises out of the breach, negligent performance or failure or delay in performance of the Contract by the Supplier, its employees, agents or subcontractors; and
 - B7-1-2 any claim brought against the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority for actual or alleged infringement of a third party's Intellectual Property Rights arising out of, or in connection with, the receipt, use or supply of the Services; and
 - B7-1-3 Any claim whether in tort, contract, statutory or otherwise, demands, actions, proceedings and any awards arising from a breach by the Supplier of clause B1-7 of these Conditions.
- B7-2 This clause B7 shall survive termination or expiry of the Contract.

BA Inaurance

- BB-1 During the term of the Contract and for a period of 3 years thereafter, the Supplier shall maintain in force the following insurance policies with reputable insurance companies:
 - B6-1-1 professional Indemnity insurance for not less than £2 million per claim;
 - B8-1-2 B8-1-2 public liability insurance for not less than £5 million per claim (unlimited claims); [and]
 - B8-1-3 B8-1-3 employer liability insurance for not less than £5 million per claim (unlimited claims); [and]
 - B8-1-4 product liability insurance for not less than £5 million for claims arising from any single event and not less than £10 million in aggregate for all claims arising in a year.
 - B8-1-5 The Supplier shall ensure that the Contracting Authority's interest is noted on each insurance policy, or that a generic interest clause has been included.
- B8-2 On request from the Contracting Authority's or UK SBS acting as an agent on behalf of the Contracting Authority, the Supplier shall provide the Contracting Authority or UK SBS with copies of the Insurance policy certificates and details of the cover provided.

- B8-3 The Supplier shall ensure that any subcontractors also maintain adequate insurance having regard to the obligations under the Contract which they are contracted to fulfil.
- B8-4 The Supplier shall:
 - B8-4-1 do nothing to Invalidate any Insurance policy or to prejudice the Contracting Authority's entitlement under it; and
 - B8-4-2 notify the Contracting Authority if any policy is (or will be) cancelled or its terms are (or will be) subject to any material change.
- B6-5 If the Supplier falls or is unable to maintain insurance in accordance with clause B6-1, the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may, so far as it is able, purchase such alternative insurance cover as it deems to be reasonably necessary and shall be entitled to recover all reasonable costs and expenses it incurs in doing so from the Supplier.

B9 Liability

- In this clause B9, a reference to the Contracting Authority or UK SBS's liability for something is a reference to any liability whatsoever which the Contracting Authority or UK SBS might have for it, its consequences, and any direct, indirect or consequential loss, damage, costs or expenses resulting from it or its consequences, whether the liability arises under the Contract, in tort or otherwise, and even if it results from the Contracting Authority's or UK SBS's negligence or from negligence for which the Contracting Authority's or UK SBS would otherwise be liable.
- The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority is not in breach of the Contract, and neither the Contracting Authority nor UK SBS has any liability for anything, to the extent that the apparent breach or liability is attributable to the Supplier's breach of the Contract.
- B9-3 Subject to clause B9-6, neither the Contracting Authority nor UK SBS acting as agent on behalf of the Contracting Authority shall have any liability for:
 - B9-3-1 any indirect or consequential loss or damage;
 - B9-3-2 any loss of business, rent, profit or anticipated savings;
 - B9-3-3 any damage to goodwill or reputation;
 - E9-3-4 loss, theft, damage or destruction to any equipment, tools, machinery, vehicles or other equipment brought onto the Contracting Authority's premises by or on behalf of the Supplier; or
 - B9-3-5 Any loss, damage, costs or expenses suffered or incurred by any third party.
- B9-4 Subject to clause B9-6, the Contracting Authority and UK SBS's total liability shall be limited to the Charges.
- Subject to clause B9-6, the Supplier's total liability in connection with the Contract shall be limited to £1,000,000.
- B9-6 Nothing in the Contract restricts either the Contracting Authority, UK SBS or the Supplier's liability for:
 - B9-6-1 death or personal injury resulting from its negligence; or
 - B9-6-2 its fraud (including fraudulent misrepresentation); or

B9-6-3 Breach of any obligations as to title implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

SECTION C

C1 Confidential Information

- C1-1 A party who receives Confidential Information shall keep in strict confidence (both during the term of the Contract and after its expiry or termination) all Confidential Information which is disclosed to it. That party shall only disclose such Confidential Information to those of its employees, agents or subcontractors who need to know the same for the purpose of discharging that party's obligations under the Contract, and shall ensure that such employees, agents or subcontractors shall keep all such information confidential in accordance with this clause C1. Neither party shall, without the prior written consent of the other party, disclose to any third party any Confidential Information, unless the information:
- C1-1-1 was public knowledge or already known to that party at the time of disclosure; or
- C1-1-2 subsequently becomes public knowledge other than by breach of the Contract: or
- C1-1-3 subsequently comes lawfully into the possession of that party from a third party; or
- C1-1-4 is agreed by the parties not to be confidential or to be disclosable.
 - C1-2 To the extent necessary to implement the provisions of the Contract (but not further or otherwise), either party may disclose the Confidential information to any relevant governmental or other authority or regulatory body, provided that before any such disclosure that perty shall make those persons aware of its obligations of confidentiality under the Contract and shall use reasonable endeavours to obtain a binding undertaking as to confidentiality from all such persons.
 - C1-3 All documents and other records (in whatever form) containing Confidential Information supplied to or acquired by a party from the other party shall be returned promptly to the other party (or, at the election of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority, destroyed) on expiry or termination of the Contract, and no copies shall be kept.

C2 Transparency

- C2-1 The Supplier acknowledges that the United Kingdom Government's transparency agenda requires that contracts, such as the Contract, and any sourcing document, such as the invitation to sourcing, are published on a designated, publicly searchable website.
- C2-2 The Supplier acknowledges that, except for any Information which is exempt from disclosure in accordance with the provisions of FOIA, the content of the Contract is not Confidential Information. The Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority shall be responsible for determining in their absolute discretion whether any of the content of the Contract is exempt from disclosure in accordance with the provisions of FOIA.

C2-3 Notwithstanding any other term of the Contract, the Supplier hereby consents to the Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority publishing the Contract In its entirety. (but with any information which is exempt from disclosure in accordance with the provisions of FOIA redacted) including from time to time agreed changes to the Contract, to the general public.

If any of the situations in C2-2-1, C2-2-2, C2-2-3 apply the Supplier consents to the Contract or sourcing documents being redacted by UK SBS to the extent necessary to remove or obscure the relevant material and being published on the designated website subject to those redactions.

In this entire clause the expression "sourcing documents" means the advertisement issued by UK SBS seeking expressions of interest, any pre-qualification questionneire stage and the invitation to tender.

C3 Force Majeure

C3-1 If any event or circumstance that is beyond the reasonable control of the Supplier, and which by its nature could not have been foreseen by the Supplier or, if it could have been foreseen, was unavoidable, (provided that the Supplier shall use all reasonable endeavours to cure any such events or circumstances and resume performance under the Contract) prevent the Supplier from carrying out its obligations under the Contract for a continuous period of more than 10 Business Days, the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may terminate this Contract immediately by giving written notice to the Supplier

C4 Corruption

- C4-1 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be entitled to terminate the Contract immediately and to recover from the Supplier the amount of any loss resulting from such termination if the Supplier or a Supplier's Associate:
- C4-1-1 offers or agrees to give any person working for or engaged by the Contracting Authority, UK SBS or any Public Body any favour, gift or other consideration, which could act as an inducement or a reward for any act or failure to act connected to the Contract, or any other agreement between the Supplier and Contracting Authority, or UK SBS or any Public Body, including its award to the Supplier or a Supplier's Associate and any of the rights and obligations contained within it;
- C4-1-2 has entered into the Contract if it has knowledge that, in connection with it, any money has been, or will be, paid to any person working for or engaged by the Contracting Authority, or UK SBS or any Public Body by or for the Supplier, or that an agreement has been reached to that effect, unless details of any such arrangement have been disclosed in writing to the Contracting Authority, or UK SBS before the Contract is entered into;
- C4-1-3 breaches the provisions of the Prevention of Corruption Acts 1889 to 1916, or the Bribery Act 2010; or
- C4-1-4 Gives any fee or reward the receipt of which is an offence under Section 117(2) of the Local Government Act 1972.
 - C4-2 For the purposes of clause C4-1, "loss" shall include, but shall not be ilmited to:
- C4-2-1 The Contracting Authority's or UK SBS's costs in finding a replacement supplier;

- C4-2-2 direct, indirect and consequential losses; and
- C4-2-3 Any loss suffered by the Contracting Authority or UK SBS as a result of a delay in its receipt of the Services.
- C5 Data Protection
- C5-1 The Supplier shall comply at all times with all data protection legislation applicable in the UK.
- C6 Freedom of Information
 - C6-1 The Supplier acknowledges that the Contracting Authority and or UK SBS may be subject to the requirements of FOIA and EIR and shall assist and co-operate with the Contracting Authority and or UK SBS to enable them to comply with its obligations under FOIA and EIR.
 - C6-2 The Supplier shall and shall procure that its employees, agents, sub-contractors and any other representatives shall provide all necessary assistance as reasonably requested by the Contracting Authority or UK SBS to enable the Contracting Authority or UK SBS to respond to a Request for Information within the time for compliance set out in section 10 of FOIA or regulation 5 of EIR.
 - C6-3 The Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority shall be responsible for determining (in its absolute discretion) whether any information:
 - C6-3-1 is exempt from disclosure in accordance with the provisions of FOIA or EIR;
 - C6-3-2 is to be disclosed in response to a Request for Information,

And in no event shall the Supplier respond directly to a Request for Information unless expressly authorised to do so in writing by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.

- C6-4 The Supplier acknowledges that the Contracting Authority and or UK SBS may be obliged under the FOIA or EIR to disclose Information, in some cases even where that Information is commercially sensitive:
- C6-4-1 without consulting with the Supplier, or
- C6-4-2 Following consultation with the Supplier and having taken its views into account.
 - Where clause C6-4-2 applies the Contracting Authority and or UK SBS shall, in accordance with any recommendations issued under any code of practice issued under section 45 of FOIA, take reasonable steps, where appropriate, to give the Supplier advanced notice, or failing that, to draw the disclosure to the Supplier's attention as soon as practicable after any such disclosure.
 - C6-6 Where the Supplier organisation is subject to the requirements of the FOIA and EIR, C6-7 will supersede C6-2 C6-5. Where the Supplier organisation is not subject to the requirements of the FOIA and EIR, C6-7 will not apply.
 - C6-7 The Contracting Authority and UK SBS acknowledge that the Supplier may be subject to the requirements of the FOIA and EIR and shall assist and co-operate with the Supplier to enable them to comply with its obligations under the FOIA and EIR.

C7 General

C7-1 Entire Agreement

C7-1-1 The Contract constitutes the entire agreement between the Contracting Authority and the Supplier in relation to the supply of the Services and the Contract supersedes any earlier agreements, arrangements and understandings relating to that subject matter.

C7-2 Liability

- C7-2-1 Where the Contracting Authority is more than one person, the liability of each such person for their respective obligations and liabilities under the Contract shall be several and shall extend only to any loss or demage arising out of each such person's own breaches.
- C7-2-2 Where the Contracting Authority is more than one person and more than one of such persons is liable for the same obligation or liability, liability for the total sum recoverable will be attributed to the relevant persons in proportion to the price payable by each of them under the Contract.

C7-3 Assignment and Subcontracting

- C7-3-1 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may at any time assign, transfer, charge, subcontract or deal in any other manner with any or all of its rights or obligations under the Contract.
- C7-3-2 The Supplier may not assign, transfer, charge, subcontract or deal in any other manner with any or all of its rights or obligations under the Contract without prior written consent from the Contracting Authority's or UK SBS acting as an agent on behalf of the Contracting Authority.

C7-4 Further Assurance

C7-4-1 The Supplier will promptly at the request of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority do (or procure to be done) all such further acts and things, including the execution of all such other documents, as either the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may from time to time require for the purpose of securing for the Contracting Authority the full benefit of the Contract, including ensuring that all title in the Supplies is transferred absolutely to the Contracting Authority.

C7-5 Publicity

- C7-5-1 The Supplier shall not make any press announcements or publicles this Contract in any way without prior written consent from the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.
- C7-5-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be entitled to publicine this Contract in accordance with any legal obligation upon Contracting Authority or UK SBS, including any examination of this Contract by the National Audit Office pursuant to the National Audit Act 1983 or otherwise.
- C7-5-3 The Supplier shall not do anything or cause anything to be done, which may damage the reputation of the Contracting Authority or UK SBS or bring the Contracting Authority or UK SBS into disrepute.

C7-6 Notices

- C7-6-1 Any notice or other communication given to a party under or in connection with the Contract shall be in writing, addressed to:
 - C7-6-1-a in the case of the Contracting Authority: Address:
 Department for Business, Energy and Industrial Strategy. 1 Victoria
 Street, London, SW1H 0ET; Email:
 a copy of such notice or communication shall be sent to: Research,
 Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF;
 Email: Research@uksbs.co.uk and the Chief Procurement Officer,
 Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF;
 - C7-6-1-b In the case of the Supplier, the address, fax number and email address set out in the Order, or any other address, fax number or email address which that party may have specified to the other party in writing in accordance with this clause C7-6, and shall be delivered personally, or sent by pre-paid first-class post, recorded delivery, commercial courier, fax or e-mail.
- C7-6-2 A notice or other communication shall be deemed to have been received: If delivered personally, when left at the address referred to in clauseC7-6-1; if sent by pre-paid first-class post or recorded delivery, at 9.00 am on the second Working Day after posting; if delivered by commercial courier, on the date end at the time that the courier's delivery receipt is signed; or, if sent by fax or e-mall between the hours of 9.00am and 5.00pm on a Working Day, upon successful transmission (provided that the sender holds written confirmation automatically produced by the sender's fax machine of error free and complete transmission of that fax to the other party's fax number), or if sent by fax or e-mall outside the hours of 9.00am and 5.00pm on a Working Day, at 9.00am on the next Working Day following successful transmission (provided that the sender holds written confirmation automatically produced by the sender's fax machine of error free and complete transmission of that fax to the other party's fax number).
- C7-6-3 This clause C7-6-3 shall only apply where UK SBS is not the Contracting Authority. In such cases, UK SBS may give or receive any notice under the Contract on behalf of the Contracting Authority and any notice given or received by UK SBS will be deemed to have been given or received by the Contracting Authority.
- C7-6-4 Except for clause C7-6-5. The provisions of this clause C7-6 shall not apply to the service of any proceedings or other documents in any legal action.
- C7-6-5 [The Supplier Irrevocably appoints and authorises [NAME] of [ADDRESS] (or such other person, being a firm of [solicitors] resident in England, as the Supplier may by notice substitute) to accept service on behalf of the Supplier of all legal process, and service on [NAME] (or any such substitute) shall be deemed to be service on the Supplier.]

C7-7 Severance

- C7-7-1 If any court or competent authority finds that any provision of the Contract (or part of any provision) is invalid, illegal or unemforceable, that provision or part-provision shall, to the extent required, be deemed to be deleted, and the validity and enforceability of the other provisions of the Contract shall not be affected.
- C7-7-2 if any invalid, unenforceable or illegal provision of the Contract would be valid, enforceable and legal if some part of it were deleted, the provision shall apply with the minimum modification necessary to make it legal, valid

and enforceable.

- C7-8 Waiver. A waiver of any right or remedy under the Contract is only effective if given in writing and shall not be deemed a waiver of any subsequent breach or default. No failure or delay by a party to exercise any right or remedy provided under the Contract or by law shall constitute a waiver of that or any other right or remedy, nor shall it practude or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall preclude or restrict the further exercise of that or any other right or remedy.
- C7-9 No Partnership, Employment or Agency. Nothing in the Contract creates any partnership or joint venture, nor any relationship of employment, between the Supplier and either the Contracting Authority or UK SBS. Nothing in the Contract creates any agency between the Supplier and either the Contracting Authority or UK SBS.
- C7-10 Third Party Rights. A person who is not a party to this Contract shall not have any rights under or in connection with it, except that UK SBS and any member of the UK SBS, Associated Bodies or Authorised Entities that derives benefit under this Contract may directly enforce or rely on any terms of this Contract.
- C7-11 Variation. Any variation to the Contract, including any changes to the Services, these Conditions, the Special Conditions or the Order, including the introduction of any additional terms and conditions, shall only be binding when agreed in writing by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority and the Supplier.
- C7-12 Governing Law and Jurisdiction.
- C7-12-1 Subject to clause C7-12-2, the Contract, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with, English law, and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales.
- C7-12-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be free to enforce its Intellectual property rights In any jurisdiction.

C7-13 Modern Slavery Act 2015

- C7-13-1 During the Term or any extension of the Contract, the Contracting Authority is committed to ensuring that its supply chain compiles with the above Act.
- C7-13-2 The Supplier shall provide a report covering the following but not limited to areas as relevant and proportionate to the Contract evidencing the actions taken, relevant to the Supplier and their supply chain associated with the Contract.
 - C7-13-2-a Impact assessments undertaken
 - C7-13-2-b Steps taken to address risk/actual instances of modern slavery and how actions have been prioritised
 - C7-13-2-c Evidence of stakeholder engagement
 - C7-13-2-d Evidence of ongoing awareness training

- C7-13-2-e Business-level grievance mechanisms in place to address modern slavery
- C7-13-2-f Actions taken to embed respect for human rights and zero tolerance of modern slavery throughout the organisation
- C7-13-3 The Contracting Authority or UK SBS when acting as an agent on behalf of the Contracting Authority reserves the sole right to audit any and all reports submitted by the Supplier to an extent as deemed necessary and the Supplier shall unreservedly assist the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority in doing so.

Note: The Contracting Authority also reserves the right to amend or increase the frequency of reporting, as it deems necessary to secure assurance in order to comply with the MSA. The Contracting Authority requires such interim assurances to ensure that the Supplier is compliant and is monitoring its supply chain, so as to meet the requirements of the above Act.

The Supplier agrees that any financial burden associated with the completion and submission of this report and associated assistance at any time, shall be at the suppliers cost to do so and will not be reimbursable.

C7-14 Changes in Costs Resulting from Changes to Government Legislation. Levies or Statutory Payments

The Contracting Authority will reimburse during any term or extension (or, where such costs, awards or damages arise following termination/expiry) of this Agreement, any increases in the Supplier's cost of providing the Services by reason of any modification or alteration to the Government legislation duties or levies or other statutory payments (including but not limited to Netional Insurance and/or VAT and/or introduction of or amendment to working time minimum wages). Subject always to open book access to the Supplier's records and always after a period of due diligence carried out by the Contracting Authority, relevant and proportionate to the value concerned.

C7-15 Taxation Obligations of the Supplier

- C7-15-1 The relationship between the Contracting Authority, UK SBS and the Supplier will be that of "independent contractor" which means that the Supplier is not an employee, worker, agent or partner of the Contracting Authority or UK SBS and the Supplier will not give the Impression that they are.
 - (1.) The Supplier in respect of consideration shall at all times comply with the income tax Earnings and Pensions Act 2003 (ITEPA) and all other statues and regulations relating to income tax in respect of that consideration.
 - (2.) Where Supplier is liable to National Insurance Contributions (NICs) in respect of consideration received under this contract, it shall at all times comply with the Social Security Contributions and Benefits Act 1992 (SSCBA) and all other statutes and regulations relating to NICs in respect of that consideration.
 - (3.) The Contracting Authority may, at any time during the term, completion extension or post termination of this contract, request (Supplier) to provide information which demonstrates how Supplier complies with its obligations under tax and National Insurance Clauses (1) and (2) above or why those clauses do not apply to it.
- C7-15-2 As this is not an employment Contract the Supplier will be fully responsible for all their own tax including any national insurance contributions arising from

carrying out the Services.

- C7-15-3 A request under Clause (3) above may specify the information which Supplier shall provide and the period within which that Information must be provided.
- C7-15-4 In the case of a request mentioned in Clause (3) above, the provision of inadequate information or a failure to provide the information within the requested period, during any term or extension, may result in the Contracting Authority terminating the contract.
- C7-15-5 Any obligation by Supplier to comply with Clause (1) and (2) shall survive any extension, completion or termination and Supplier obligations to indemnify the Contracting Authority shall survive without limitation and until such time as any of these obligations are complied with.
- C7-15-6 The Contracting Authority may supply any Information, including which it receives under clause (3) to the commissioners of Her Majesty's Revenue and Customs for the purpose of the collection and management of revenue for which they are responsible.
- C7-15-7 If the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority has to pay any such tax under clauses (1) and (2) then the Supplier will pay back to the Contracting Authority or UK SBS in full, any money that the Contracting Authority or UK SBS has to pay, and they will also pay back the Contracting Authority or UK SBS for any fine or other punishment imposed on the Contracting Authority or UK SBS because the tax or national insurance was not paid by the Supplier.

C7-16 Cyber Essentials Questionnaire

The Supplier agrees that during any term or extension it shall complete and return the attached questionnaire as advised below, within 14 days from notice and shall send this information as directed by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority. The Contracting Authority and UK SBS acting as an agent on behalf of the Contracting Authority is required to provide such assurances to comply with Government advice and guidance.

Note: The Contracting Authority also reserves the right to amend or increase the frequency of the questionnaire submission due dates, as it deems necessary. The Contracting Authority requires such interim assurances to ensure that the Supplier is still compliant with the security needs of this Contract.

The Supplier agrees that any financial burden associated with the completion and submission of this questionnaire and associated assistance at any time, shall be at the suppliers cost to do so and will not be reimbursable.

Copy os Statement of Assurance Questio

OFFICIAL-SENSITIVE (COMMERCIAL)

UK Shared Business Services Ltd (UK SBS)

Schedule 1 Special Conditions

Schedule 2 Pro forma purchase order form

The format of the Proforma Purchase Order will be as follows. Please note that the Purchase Order form will be submitted directly to your chosen email address on completion of the receipt of the signed contract and will contain the confirmed value of goods and services as well as the Purchase Order number that must be used for invoicing purposes.

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Schedule 3 The Service

D1 SCOPE OF SERVICES TO BE PROVIDED

D1-1 To carry out CR19062 - Atmospheric Implications of Increased Hydrogen Use, as outlined in Annex A - Specification and Annex B - Bld Response.

D2 COMMENCEMENT AND DURATION

D2-1 This Contract shall commence on Wednesday 16th October 2019 and subject to any provisions for earlier termination contained in the Standard Terms shall end no later than Tuesday, 6th April 2021.

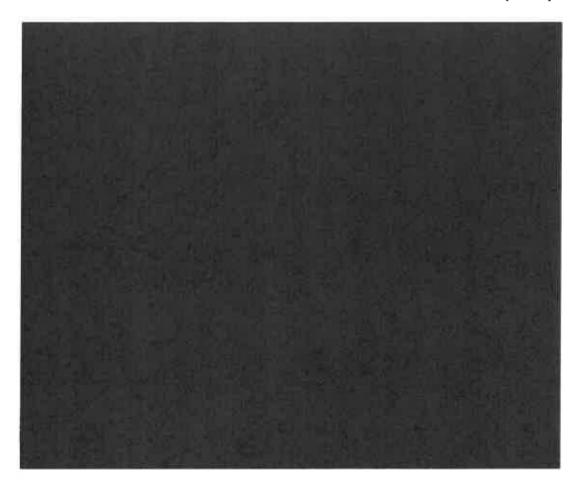
D3 MANAGEMENT AND COMMUNICATIONS

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D3-3 UK Shared Business Services appoints: Procurement Undergraduate, Research Team, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF; Email: Research@uksbs.co.uk.

D4 - Contract Price

D4-1 Total Contract price shall not exceed £75,000.00 excluding VAT in accordance with the Contract price and breakdown submitted for this contract detailed below:



For and on behalf of University of Cambridge (The Supplier)	
Signed ,	
Name	Sin Community
Poeition	SQ GNIDACTS MGR
Date	30 Oct. 2019
For and on behalf of the Department for Business, Energy and Industrial Strategy (The Contracting Authority)	TINK WENT AND
Signed	
Name	Director, Science 2 lanoration for Clim te
Position	64/11/19 Eurray

THIS IS THE LAST PAGE OF THESE TERMS & CONDITIONS

Date ·

Annex A - Specification

1. Background

As part of the Department for Business, Energy and Industrial Strategy's (BEIS) objective to ensure the UK has a reliable, low cost and clean energy system, and in support of the UK's Clean Growth Strategy, hydrogen is being assessed as a replacement option for natural gas in key economic sectors which face substantial challenges in decarbonising, such as heat and industry.

In 2018, the Committee on Climate Change published a report on Hydrogen in a Low Carbon Economy. The CCC report highlights that in order for hydrogen to make a substantial contribution to UK heating by 2050, strategic decisions on its deployment will need to be made during the mid-2020s due to the long infrastructure lead times for implementation.

Some hydrogen leakage from production and distribution itmough the hydrogen grid is likely to occur and a robust understanding of its impact on the atmosphere to inform future decision making is currently lacking. Hydrogen is not itself a greenhouse gas but acts as an indirect greenhouse gas through its effect on hydroxyl radicals. By reacting with the hydroxyl radical in the atmosphere, hydrogen increases the lifetime of methane, and the formation of tropospheric ozone. A portion of the hydrogen emitted at the surface may elso be transported to the stratosphere; once in the stratosphere, hydrogen reacts with the hydroxyl radical to form water vapour and causes stratospheric cooling. This cooling may increase the occurrence of polar stratospheric clouds and thereby provide a reaction site for enhanced ozone depletion.

A literature review by Dr R Derwent Indicated that there was likely to be a small, but uncertain, warming impact on climate due to hydrogen leakage and highlighted the need for further research into the impacts of hydrogen on both climate and stratospheric ozone destruction.

The use of hydrogen as a replacement fuel would be accompanied by reductions in the emission of methane, carbon dioxide, carbon monoxide, nitrogen oxides and non-methane hydrocarbons which must also be taken into account when evaluating atmospheric impacts.

2. Aims and Objectives of the Project

This research project will update our understanding of the impacts on the climate and stratospheric ozone layer of hydrogen emissions associated with its future use as an energy source. Hydrogen is an indirect greenhouse gas because its emission affects the concentration of ozone and methane in the atmosphere; it may also affect the amount of ozone in the stratosphere.

Using a peer-reviewed coupled chemistry-climate model, the impact of increased hydrogen use on global atmospheric composition will be quantitatively evaluated. The project will explore the extent to which the location, timing, and scale, of hydrogen release affects these environmental impacts using scenarios which cover a range of foreseeable future pathways. Research providers will work with the project Steering Group to design experiments that enable a robust quantification of the potential impact of hydrogen under realistic future scenarios and provide the results in a way that enables the atmospheric impact of developing policy choices to be evaluated.

This project will generate:

- A quantitative assessment of the impact of hydrogen emission, and concurrent reduction in methane, carbon dioxide, carbon monoxide, nitrogen oxides and non-methane hydrocarbons emission, on atmospheric composition
- Regionally appropriate global warming potentials for hydrogen release (i.e., as hydrogen

production may not necessarily be in northwest Europe for UK consumption)

. An estimate of by how much (i.e., number of years) additional hydrogen release could delay the recovery (to 1980 levels) of the stratospheric ozone layer, at polar, mid- and tropical latitudes.

3. Suggested Methodology

Using a peer-reviewed coupled chemistry-climate model, the impact of hydrogen emissions on global atmospheric composition will be quantitatively evaluated ensuring a suitable reaction scheme is used for tracking the fate of hydrogen. This may involve computational model development to treat (a suitable portion of) the emitted hydrogen as an interactive tracer.

Contractors will work with the project Steering Group to design emission scenarios that enable a robust quantification of the potential impact of hydrogen under realistic future scanarios. These scenarios should explore:

- The impact of timing i.e., does hydrogen emitted in 2050 have the same impact on the atmosphere as hydrogen emitted in 2020, for example in the context of a) declining levels of (etratospheric) ozone-depleting substances, b) changing climate, c) different levels of emissions from other sources?
- The impact of location i.e., does hydrogen emitted in Europe have the same impact on the atmosphere as hydrogen emitted in the tropics or the southern hemisphere?
- The linearity of the response e.g., does twice the emission of hydrogen have twice the impact on atmospheric composition and climate?
- Sensitivity enalysis of the timings, assumptions, and interactions with other gases to provide the most probable outcome of additional hydrogen release (for example, in terms of delaying the recovery to 1980 levels of the stratospheric ozone layer)

Research providers must have access to a peer-reviewed coupled chemistry-climate model capable of representing the chemistry and physics of the troposphere and stratosphere. Providers may include funds to cover the cost of high-performance computing within their bid.

4. Deliverables

The contractor will provide:

- written progress reports (at 3, 6 and 12 months)
- a final written report (at 18 months, or sooner if the project is shorter)
- submission of a peer-reviewed journal publication (final publication may occur after the end of the contract)

Terms and Conditions

Bidders are to note that any requested modifications to the Contracting Authority Terms and

Conditions on the grounds of statutory and legal matters only, shall be raised as a formal clarification during the permitted clarification period.