

Verco Advisory Services Ltd
Overmoor,
Overmoor Farm,
Neston,
Corsham,
Wiltshire,
SN13 9TZ

Monday, 28 January 2019

Dear Sir/Madam,

Contract Title: Non-domestic Buildings Potential for Low Carbon Heating, Hot Water, Ventilation and Cooling (HVAC) Technology

Contract Reference: UK SBS CR18146

The Contract shall be subject to the UK Shared Business Services Ltd S1 Terms and Conditions for the Purchase of Services and the following Schedules:

Schedule 1	Special Conditions
Schedule 2	Purchase Order Form
Schedule 3	The Services
Appendix A	Specification
Appendix B	Bidder Response

Please note that this Contract is subject to signed Contract Acceptance

Yours Sincerely,


Category Manager
Research Team
UK Shared Business Services Ltd
Research@uksbs.co.uk

S1 - PRECEDENT CONTRACT FOR THE PURCHASE OF SERVICES

SECTION A

This Contract is dated 18th January 2019

Parties

- (1) **Department for Business, Energy and Industrial Strategy**, 1 Victoria Street, London SW1H 0ET (**The Contracting Authority**).
- (2) **Verco Advisory Services Ltd**, Overmoor, Overmoor Farm, Neston, Corsham, Wiltshire SN13 9TZ, (**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.uksbs.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, 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 issued 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, database 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 Schedule 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 limitation, the Supplier's subsidiary, affiliated 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 other 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 Contract, the Special Conditions (if any) and the Order (including any Specification), the terms of the Contract 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. Notwithstanding 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 signed 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 behalf 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) fails 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 fails 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.

A3-6 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall at any time have the right for convenience to terminate the Contract or reduce the quantity of Services to be provided by the Supplier in each case by giving to the Supplier reasonable written notice. During the period of notice the Contracting Authority may direct the Supplier to perform all or any of the work under the Contract. Where the Contracting Authority has invoked either of these rights, the Supplier may claim reasonable costs necessarily and properly incurred by him as a result of the termination or reduction, excluding loss of profit, provided that the claim shall not exceed the total cost of the Contract. The Supplier shall have a duty to mitigate its costs and shall on request provide proof of expenditure for any compensation claimed.

SECTION B

B1 Supply of Services

- B1-1 The Supplier shall from the date set out in the Contract and 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 agent 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 workmanship, 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 Services.
- B1-4 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.
- B1-6 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's 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 fails 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 failure 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 SBS 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.

B4-2 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-rata 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

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 complies at all times with Contracting Authority's expenses policy from time to time in force.

- B4-4 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

- B5-1 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 Contract and in accordance with written instructions or authorisation from 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.
- B6-2 Save as otherwise provided in the Special Conditions, the Supplier assigns 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 sub-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 waivers 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 with:
- 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.

B8 Insurance

B8-1 During the term of the Contract and for a period of 2 years thereafter, the Supplier shall maintain in force the following insurance policies with reputable insurance companies:

B8-1-1 professional Indemnity insurance for not less than £1 million per claim;

B8-1-2 public liability insurance for not less than £1 million per claim (unlimited claims); and

B8-1-3 employer liability insurance for not less than £1 million per claim (unlimited claims); and

B8-1-4 product liability insurance for not less than £1 million for claims arising from any single event and not less than £1 million in aggregate for all claims arising in a year.

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.

B8-5 If the Supplier fails or is unable to maintain insurance in accordance with clause 0, 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

- B9-1 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.
- B9-2 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;
 - B9-3-4 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.
- B9-5 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 party 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 questionnaire 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 limited 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 from time to time.
- C5-2 General Data Protection Regulations (GDPR)

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.

- C6-5 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 damage 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 publicise 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 publicise 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: [REDACTED]
Department for Business, Energy and Industrial Strategy,
Address: 1 Victoria Street, London SW1H 0ET; (and a copy of such notice or communication shall be sent to: **Research Team, 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 clause C7-6-1; 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 and at the time that the courier's delivery receipt is signed; or, if sent by fax or e-mail 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-mail 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 unenforceable, 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 preclude 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 complies 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 National 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 statutes 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 of Statement
of Assurance Questionnaire

Schedule 1 Special Conditions

Not Applicable

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

Purchase Order #0

(Contracting Authority Logo)

Order	
Order Date	
Revision	0
Revision Date	
Payment Terms	As per terms and conditions

Supplier:

Tel:

Fax:

PLEASE QUOTE THE PURCHASE ORDER NUMBER ON ALL CORRESPONDENCE. INVOICES NOT QUOTING THE PO NUMBER WILL BE RETURNED UNPAID

For all purchase order queries, please contact P2PAdmin@uksbs.co.uk
For all invoicing queries, please contact finance@uksbs.co.uk

Ship to: Contracting authority ship to address

Invoice to: Contracting Authority Invoice Address

Line	Part Number/Description	Delivery Date	Quantity	UOM	Unit Price (GBP)	Tax	Net Amount (GBP)
1							

Total

Grand Total

Whenever a UK SBS Contract number is cited within the narrative description of the Purchase Order that Purchase Order is subject to the Terms and Conditions relating to that Contract, otherwise, the Purchase Order is subject to the Terms and Conditions Incorporated herein by this reference. For a copy of the Terms and Conditions please see <http://www.uksbs.co.uk/services/procure/Documents/SSCPO/terms.pdf>

Commercial In Confidence

	VAT Registration Number GB 618 367 325
	(Contracting Authority), Polaris House, North Star Avenue Swindon, United Kingdom SN2 1EU

Schedule 3 The Service

D1 SCOPE OF SERVICES TO BE PROVIDED

D1-1 To carry out CR18146 – Non-domestic Buildings Potential for Low Carbon Heating, Hot Water, Ventilation and Cooling (HVAC) Technology, as outlined in Appendix A – Specification and Appendix B – Bid Response.

D2 COMMENCEMENT AND DURATION

D2-1 This Contract shall commence on Monday, 21st January 2019 and subject to any provisions for earlier termination contained in the Standard Terms shall end no later than 30th September 2019.

D3 MANAGEMENT AND COMMUNICATIONS

D3-1 The Customer appoints: [REDACTED], Department for Business, Energy & Industrial Strategy, 1 Victoria Street, London SW1H 0ET [REDACTED] (or such other person as is notified by the Customer to the Supplier in writing) to be the Customer's Contract Manager.

D3-2 The Supplier appoints [REDACTED], Verco Advisory Services Ltd, Overmoor, Overmoor Farm, Neston, Corsham, Wiltshire SN13 9TZ, [REDACTED], (the "Supplier") (or such other person as is notified by the Supplier to the Customer in writing) to be the Supplier's Contract Manager.

D3-3 UK Shared Business Services appoints: [REDACTED], Category Manager, Research Team, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1ET; Email: Research@uksbs.co.uk.

D4 – CONTRACT PRICE

D4-1 Total Contract price shall not exceed £109,808.00 excluding VAT in accordance with the Contract price and breakdown submitted for this contract detailed below:

AW5.2 Price Schedule

WORKING REFERENCE		CR18146		
SUBJECTIVE REQUIREMENT TITLE		Non-ferrous coatings provided for four carbon bearing, steel wheels and housing (FAC) re-rolling		
ISSUER NAME		Vero Advisory Services Ltd		
Please complete the shaded yellow sections only				
Section 1				
Objective				
Research				
Data Collection/Compilation				
Surveys				
Qualitative Interviews				
Case Studies				
Sampling				
Analysis				
Project Management				
Meetings				
Other Costs				
TOTAL FIXED PRICE				
Section 2				
Job Title				
Consultant team				
Expert panel, peer review, expenses				
Expert panel, peer review, expenses				
TOTAL FIXED PRICE				

CR18146 should be used for all correspondence purposes. Payment of a high quality fixed fee (not a fixed fee) is required to ensure that the quality of the work is maintained. It is noted that F&N should be notified when the job starts provided. All pricing must be in line with the quality of the work.

D4-2 All invoices should be sent to finance@uksbs.co.uk or Swindon (UKSBS Swindon, Polaris House, North Star Avenue, Swindon, SN2 1FF). A copy of the invoice should also be sent to the Project Manager, [REDACTED].

For and on behalf of VECA ADVISORY SERVICES LTD.
(The Supplier)

Signed

[Redacted Signature]

Name

[Redacted Name]

Position

[Redacted Position]

Date

[Redacted Date]

For and on behalf of BEIS
(The Contracting Authority)

Signed

[Redacted Signature]

Name

[Redacted Name]

Position

[Redacted Position]

Date

[Redacted Date]

online

OFFICIAL-SENSITIVE (COMMERCIAL)

UK Shared Business Services Ltd (UK SBS)

THIS IS THE LAST PAGE OF THESE TERMS & CONDITIONS

Appendix A Specification

Background

In order to meet the 5th Carbon Budget, the Clean Growth Strategy identified the need to focus on decarbonising non-domestic buildings, with almost 50MtCO₂e of savings coming over the Carbon budget 5 period. We understand that half of this reduction can be achieved through energy efficiency measures. Our evidence base for energy efficiency measures are fairly developed due to the Buildings Energy and Efficiency Survey (BEES), which we conducted between 2014 and 2015. This survey examined the potential for installing energy efficiency measures across different non-domestic buildings across all non-domestic sectors, considering various factors such as whether the building is owned or rented, the type of business activity conducted in the building, the size of that business etc. As a result of BEES, we have a good understanding of what energy efficiency technologies, which sectors and what building types policy can target in order to maximise carbon reductions. BEES has also fed into developing models for policies such as for those targeting building regulation and the private rented sector.

Whilst energy efficiency measures can achieve half of the non-domestic potential required for CB5, and we have some good evidence on how best to implement those measures, we know that low carbon heating measures will be required to deliver the remaining potential. However, our evidence base on these technologies and how/where the potential lies to implement these measures is limited.

In order to develop confidence and robustness around future policy design involving low carbon heating measures, (which is crucial to our carbon reduction ambitions), it is important we develop the evidence base around low carbon heating, hot water, ventilation and cooling, how they are used or could be used to support our wider long term aims on strategic heat decarbonisation.

Aims and Objectives of the Project

The project will help to develop our existing evidence base around the potential to reduce carbon emissions in non-domestic buildings. Our current evidence is largely based on the Buildings Energy Efficiency Survey (BEES) on the potential to deploy energy efficiency measures in non-domestic buildings. This project will build on this, using BEES as a starting point and gathering further evidence to focus on the potential for implementing low carbon heating cooling and ventilation technologies. Understanding this potential is key to delivering our Clean Growth Strategy commitments and meeting our fifth carbon budget, as we know that whilst energy efficiency measures will deliver around half of the carbon savings required in the non-domestic sector, low carbon heating and cooling measures are needed to deliver the rest.

A key deliverable will be a model/extensions to a model, to develop building and technology archetypes, and map these to one another to understand what types of buildings are suited to which technologies. These archetypes will need to be compatible with the Buildings Energy Efficiency Survey (BEES) sample. We expect to use the outputs of this model to understand the capital costs, cost savings, carbon savings, energy consumption and various other cost and benefit profiles of particular low carbon HVAC technologies.

This research will be aligned with the BEES scope, covering non-domestic buildings in England and Wales (with the exception of data centres, industrial processes and transport

e.g. bus and train stations). This data can be scaled for the UK using the same scale as BEES. We expect the outputs to be used widely across Government, informing policy across a number of areas such as the public sector, business energy, building regulations, the private rented sector and industrial buildings (though not industrial processes), future heat policy and informing options around long term strategic heat decarbonisation.

The outputs will help determine where to target particular low carbon heating and cooling policies, identifying where the greatest potential to reduce carbon through these technologies exists, where the technologies with the quickest paybacks can be most easily implemented, what the 'quick wins' will be and what the savings (both bill and carbon) and costs will be associated with this potential.

The research will need to answer the following specific questions:

The overarching question is:

What potential is there across England and Wales, to reduce carbon emissions by implementing low carbon space heating, hot water, ventilation and cooling (HVAC) technologies in non-domestic buildings?

We would expect contractors to consider technologies which are beyond current traditional fossil fuel-based HVAC systems. Broadly, we would expect these to be broadly categorised in the following groups: Heat pump-based technologies including hybrids with existing fossil fuel systems, bio-energy based technologies, hydrogen based technologies or connections to heat networks. There may be other technologies which are suitable for specific buildings e.g. solar thermal.

Detailed Questions

Suitability & Context

- What heating, cooling and ventilation (HVAC) systems do different building types in different sectors of the non-domestic building stock currently use?
- What low carbon HVAC systems could different building types in different sectors of the non-domestic building stock feasibly switch to? This should take into account numerous factors including technical feasibility and practical feasibility.
- How many non-domestic buildings have multiple technologies i.e. secondary heating or combined heating and cooling systems etc. and in which sectors they are found and potentially how they work together as packages of low carbon heating measures?
- Are there any specific technical challenges associated with non-domestic buildings in off gas grid areas?
- Are there any specific technical challenges associated with non-domestic buildings associated with industrial processes?

Cost, Performance and Use

- What are the capital, operational and fuel costs of operating different heating systems in different building types?
- What are the technical characteristics of these heating systems, for example efficiency, lifetime, capacity, size, load profile, load capacity (seasonal/daily) etc.

- How do these costs compare to the counterfactual? i.e. what is the net impact of switching?
- Is there any correlation between heat loads/load profiles or mix of end uses and requirements and the technology options available?

2050 Context

- Which of these buildings sectors will be most affected by a long-term strategy for heat decarbonisation (i.e. through electrification or hydrogen or other) for heating in buildings? This question does not expect contractors to model or assume different scenarios for the future, but to identify buildings/sectors/systems which will most likely be affected by changes through electrification or hydrogen etc, and where possible identify how they could adapt.

We propose to additionally do deep dives on specific areas of policy interest (for example off gas grid or buildings with high heating and cooling loads). In these cases the research would act to give market context to the heating and cooling technical cost and performance information.

As with BEES, we expect this research to provide a snapshot of what the potential is at a given point in time, however, if contractors are able to consider projections of how costs/efficiencies are likely to change over time, this would be particularly valuable.

Suggested Methodology

Whilst we are not being prescriptive about the methodology contractors wish to employ for their research, we envisage the project could be split into three distinct phases, and recommend the use of the following techniques at each phase:

Phase I: We envisage this to be largely desk based research, which could be reviewed and verified by an independent panel, as part of quality assurance purposes.

1. Evidence review - Literature review of existing evidence including BEES model.
2. Data collection - HVAC systems assumptions generation on costs, performance, lifetimes, efficiencies, sizing. Likely to be predominantly publicly available data. Potentially, some market intelligence data gathering where contractors should be able to gather additional data from key stakeholders. It is important to note that the extra information we are looking for are estimates of installation costs and installation feasibility which would not necessarily be found through building surveys or audits – therefore discussion with industry experts is considered more appropriate.
3. Sub-sector deep dives – More in-depth analysis of specific sub-sectors, we expect as a minimum these should include six sectors but we are open to bidders proposals on which sectors should be focused on (factories, private/public sector offices, higher education (teaching and research), hospitals, large food shops and leisure centres). We consider these sectors to either represent significant proportions of non-domestic HVAC energy use or are considered to have more complex HVAC systems or both, and therefore require a more detailed evidence gathering process to inform the modelling exercise in Phase II. This is also likely to be desk based but informed by engagement with relevant experts.

Phase II: Model design – In order to answer the research questions, we expect that a modelling exercise is necessary in order to determine the suitability of switching HVAC systems in different building types and to establish the cost and benefits of this process. An archetype approach is proposed which would utilise the BEES survey and model as the sample data of the non-domestic building stock. BEIS has developed a model based on the BEES sample and we expect to be able to provide the key aspects of this to the contractor.

This modelling exercise therefore may be developed as an add-on module to the existing model.

We would expect the design of both the buildings and technology archetypes to be informed by groups of experts who are familiar with specifying and managing HVAC systems in particular building sectors. These are likely to include Mechanical and Electrical (M&E) consultants, installers, facilities managers and other industry experts.

4.
 - a. Technology archetypes creation and case studies – developing common technology archetypes to be used across the building archetypes. E.g. a ground-source heat pump heating and cooling system which can be used in a large naturally ventilated building.
 - b. Building archetype creation e.g. Office_large_naturally ventilated
5. Modelling BEES sample - assignment of building archetypes to existing BEES sample, assignment of counterfactual technology archetypes and logic selection for potential low carbon technology archetypes, and use these to develop a set of assumptions for the non-domestic buildings model.
6. Cost/Benefit analysis – Assess the cost and benefits using same criteria from the BEES sample (energy consumption, energy savings, capital expenditure, carbon savings, bill savings) of switching to the most feasible, cost effective low carbon HVAC system.

Phase III: Validation

7. Model validation – we propose that as a minimum, the outputs of the model should be validated through an external Quality Assurance (QA) process using impartial industry experts e.g. Chartered Institute of Building Services Engineers (CIBSE). Contractors may propose alternative methods such as access to bulk building data or site surveys but the proposed approach should be clearly articulated.

Risks and Mitigations

The consultant awarded the contract may face certain risks around sector engagement, data availability and the limitations of using the BEES sample. By not making building assessments/site surveys a requirement for this research, BEIS has mitigated some of these risks in part, but not fully and therefore the contractor should set out their mitigation strategies against these in their bid.

To this end, a clear risk register, identifying high risk elements of the project and a risk management plan, outlining the mitigation strategies (with explicit quality assurance processes, in line with HM Government's Aqua Book) should be included in the bid.

Deliverables

- Literature review of current evidence on low carbon HVAC technologies and how they are implemented across non-domestic buildings.
- Assumptions log for all building and technology archetypes including counterfactuals. This should include both technical and economic assumptions. As with BEES, these assumptions are likely to represent a snapshot at a given point in time, however, it would be particularly useful to have forward looking assumptions.

- A model and model outputs on the potential to implement low carbon HVAC technologies in non-domestic buildings, split by sector and sub-sector in line with the BEES sample, in a format compatible with current BEIS models.
- The underlying data that feeds into the model should be provided in an Excel format (csv, xlsx, etc). The findings from this study will be incorporated into other BEIS models such as BEES and PRS models, which are our main carbon reduction modelling tools. There may also be scope to use programmes such as R to provide additional insight and create data visualisations. Therefore, providing underlying data in an appropriate format would be necessary.
- A quality assurance log with details on how the assumptions, methodology, results and findings were quality assured, to what extent they were assured i.e. peer review, panel review, independent external review etc, the findings from these quality assurance exercises and any changes which were made following these exercises in line with BEIS modelling integrity guidance and quality assurance best practice¹.
- A technical report with an executive summary, methodology, findings, caveats to findings, limitations of the data and potential for how these findings can be used in conjunction with other data. This will include chapters on sub-sector deep dives providing a more in-depth overview of these sectors and their associated challenges.
- Report from independent review by expert panel, to validate assumptions and findings.

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.

¹ <https://www.gov.uk/government/collections/quality-assurance-tools-and-guidance-in-decc>

Appendix B Bidder Response

Approach

Our proposed method will combine two existing approaches to deliver on the goals BEIS have set; the BEES model and Currie and Brown's database of cost standards. These will be integrated through a common set of technology and building archetypes developed in the project. In addition to these datasets the team will also develop a source database on the performance that technologies will achieve. All of the model inputs will be supplemented with desk-based research, expert insight and peer reviews to ensure the findings are robust.

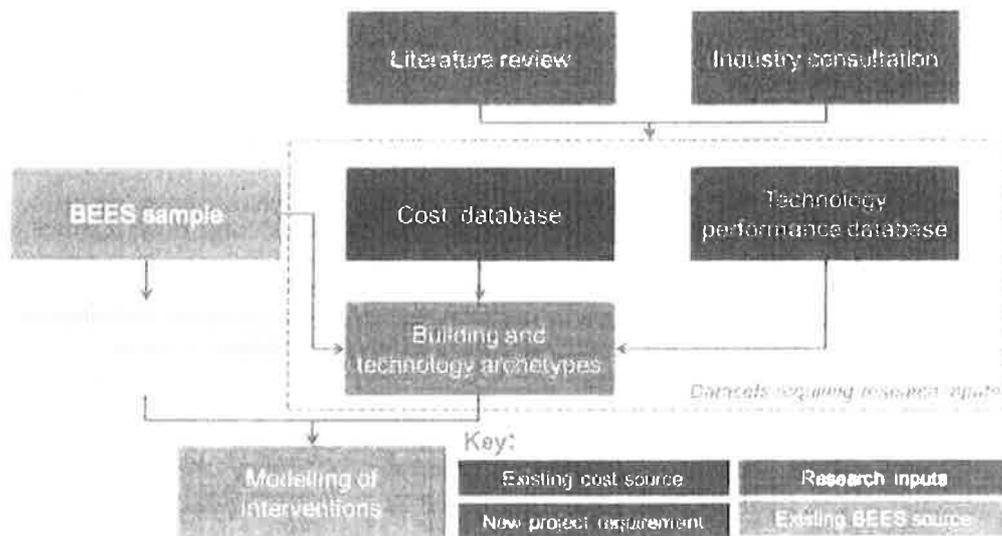


Figure 1: Project data schematic

1.1 Addressing key challenges

In developing a robust method there are a number of challenges we have identified and which our approach will aim to address:

1. *Mapping BEES sample data to archetypes*: As mentioned in the 'understanding the project environment' one of the reasons why BEES did not address alternative low carbon HVAC solutions initially was due to concerns regarding the impact on telephone survey complexity and length.

This project proposes a new method to address this limitation – the creation of archetypes based on general building characteristics to determine the range of applicable systems. This is a significant deviation from the core BEES method which modelled each building separately based on those survey responses directly. This approach interpolates the characteristics to determine the applicability of a measure. For the method to work it relies on sufficient information in the original BEES sample to map applicable technologies. For the purpose of the bid we have constructed an example

approach to building archetypes based on five variables (Bracketed references relate to the question location in the BEES survey):

- a. Main heating fuel (Q9b)
- b. Presence of cooling (Q12)
- c. Presence of boilers (BS1a)
- d. Cooling distribution system type (BS2a)
- e. Rural or Urban location (tailored to sub-sector but present in ~50% of sample)

To illustrate the method we have applied the approach to commercial offices. The following are common options for HVAC servicing of commercial offices. Allowing the combination of all options would generate an initial list of 36 different archetypes:

Heating/cooling	Ventilation	Hot water
Gas boiler only	Natural ventilation	Electric
Gas boiler & electric chiller	Mixed mode	Thermal
Gas boiler & refrigerant cooling	Mechanical ventilation	
Electric heating only		
Electric heating & chiller		
Electric heating & refrigerant cooling		

We can develop a list of low carbon alternative heat sources and apply these as options to each of the base archetypes, stating in each case whether this would require replacement of the distribution and emitters e.g. radiators, fan coils etc. The technologies we would consider include; heat pumps, biomass boilers, fuel cells, solar thermal and district heating. This would generate a number of solutions (see table below for two examples) for which we generate cost information, allowing cost benefit analysis and identification of viable alternative scenario for each archetype.

No.	Alternative heat source	Replace heat distribution	Replace heat emitters	Alternative cooling source	Replace cooling distribution	Replace cooling emitters	Alternative hot water
1	Heat pump	No	Yes	N/A	N/A	N/A	Solar thermal
2	Biomass boiler	No	No	Absorption chiller	No	No	Biomass boiler

Some scenarios could be ruled out based on certain contextual factors from the BEES dataset e.g. biomass boilers for buildings in an urban location. Most sectors will have fewer base and alternative scenarios than commercial offices based on the complexity and process-dependency of the buildings. The following is an example of how the base HVAC scenarios might differ for industrial buildings:

Heating/cooling	Ventilation	Hot water
Warm air heating	Natural ventilation	Electric
Radiant heating	Mechanical ventilation	Thermal
Electric heating & refrigerant cooling		

At kick off the number of archetypes will need to be agreed with an expectation that between 15 – 20 would be taken forward and that these would represent the prominent scenarios across the non-domestic stock.

2. *Using processed BEES data as cost parameters:* Once the technology and building archetypes have been developed it will be necessary to scale costs on a per building basis

through the use of cost parameters. These are variables that allow for tailored costings of systems based on the assets characteristics.

The costing parameters are likely to draw on two sources; BEES sample data and Original BEES processed data. The sample data will provide core information such as building size and system type and so on.

The Original BEES processed data are the outputs from the Energy Use model. The Energy Use model used a first principles approach to calculate the energy consumption associated with each modelled end use. For instance heating consumption would be calculated by considering the boiler efficiency, boiler rating and hours of operations. The data from the Original BEES processed data provides a breakdown of critical system assumptions associated with the energy use of a building.

We have identified a number of cost variables that exist either directly within the sample or processed data or could be derived from it:

Component	Cost parameter requirement	Source in BEES data
Generating plant	£ per kW peak for given size and performance efficiency	Original processed BEES data
Distribution	£ per m ²	BEES sample
Controls	Linked to size of plant and system	Interpolated from generating plant
Terminal units / emitters	£ per fitting	Interpolated based on density * floor area
Air Handling Units	£ per litres per min capacity for a given SPF	Interpolated from original processed BEES data
Thermal Storage	£ per litres water storage or equivalent	Interpolated from original processed BEES data
Building Management System	£ per m ²	BEES sample

3. *Handling stepped fixed costs:* For some technology types, such as say fuel cells, costs are incurred in fixed cost increments as opposed to linearly in response to a scaling factor. In these instances we will design the model to handle a variety of cost parameter behaviours and test these with industry to refine and validate the assumptions.

4. *Determining appropriate costs for emergent technology types:* The modelling of costs associated with emergent technology, such as the use of fuel cells enabled by the development of a hydrogen supply infrastructure, is currently highly restricted. There may also only be limited information on expected utility costs associated with such sources of energy. We propose to consult with the relevant trade bodies and manufacturers to determine the most appropriate numbers for such technology types.

5. *Handling poorer samples:* Within BEES, a number of sub-sectors relied on poorer quality data sources. These included for instance some of the retail sectors where data was gathered via mystery shoppers and restricted to only what information was readily observable from the public spaces.

In order to process such records it is likely that a greater degree of interpolation may be required from the available information. To mitigate this, interviews with experts for affected sub-sectors should allow for a more robust understanding of the likely systems that would be deployed to such buildings in the future.

6. *Addressing bias from industry sources:* When consulting with industry on system costs there is a risk of a conflict of interest emerging, with respondents providing potentially misleading cost or performance feedback for their own gain. Any data which has been sourced from industry will be labelled accordingly within the source material. Furthermore where possible, data provided will be compared to existing estimates for such systems that Currie and Brown would have maintained internally.

7. *Handling unusual sector characteristics:* Occupant comfort requirements vary dramatically between subsectors. In some subsectors, such as restaurants or factories occupants are willing to accept far greater ranges in temperature conditions than say an office environment. Furthermore, internal gains arising from other activities within a building such as catering or industrial processes can mean that heating and cooling requirements are distorted. The original BEES modelling accounted for such variations to a certain extent but they could create noise within the current analysis as well, and subsectors with known issues should be monitored in early result runs.

8. *Gathering industry feedback effectively:* A challenge the team faced within BEES was rapidly gaining feedback on complex topic areas with a significant number of underlying assumptions. To address this, we propose to develop a case study building for each archetype – this should help users assess the viability of a given cost parameter or proposed technology performance assumption based on a proposed outcome at a resolution that should be familiar to most experts. This will depend to some degree on the total number of archetype possibilities, with these case studies potentially being restricted to the more common building setups.

9. *Identifying deep dive experts:* For BEES, Verco developed a list of experts who were interviewed to support the design of tailored sub-sector surveys for each sub-sector. It is proposed that this list of experts be used as a starting point for potential candidates as experts for this commission. They will already be familiar with the study and the method, which should support the gathering of higher quality feedback. These one-to-one interviews will be used in stage 1 for the deep dive reviews.

10. *Changing nature of the built environment:* The non-domestic stock is undergoing radical change in terms of its characteristics. For instance retail operations are currently moving from a strong high street presence to greater online sales. Other activities are also shifting in terms of significance and nature of operations, whether it is increasing office rationalisation through agile working policies and increasing automation of services or the rapidly reducing number of pubs.

The net effect is a dynamic stock profile where material activities today may be irrelevant in the future. These changes are likely to have a major impact on the carbon emissions of the non-domestic stock and by extension where capital should be allocated to abate such emissions. Currently we consider this challenge to be outside the scope of the present analysis, other than some high level commentary on these issues in the technical report and acknowledgment of this as a possible source of error.

1.2 Method

Our proposed project method is set out below. Prior to commencing the project we are also proposing a "preparation" stage where the ground work is completed to ensure subsequent stages are completed as smoothly as possible:

1.2.1 Preparation:

Preparation consists of agreeing on a provisional specification for the building and technology archetypes, engaging with key stakeholders, designing a common data collection sheet and agreeing on the project deliverable requirements:

1. *Building and technology archetypes:* In order to begin gathering information on cost and performance the project team will need to agree on a provisional technology and building archetype approach. It is proposed that the archetypes specified are revisited at the end of the data collection phase to assess if any amendments are required. These archetypes will include a provisional mapping of cost parameters from the source data to likely cost reference units.

2. **Engagement:** The list of organisations and individuals that the project intends to engage with should be identified and approved. They should then be contacted to determine if and how they would be willing to support the project.
3. **Data collection sheet (DCS):** To ensure data is gathered, coded and stored in a consistent fashion across the consortium a common data sheet will be designed. This will mean all information will be held in a consistent format. This sheet will cover not only the data being sought, but also the location of the reference document and the quality of the source in terms of known bias or robustness of research method.
4. **Project deliverables:** For an evidence base building exercise it is essential to define the likely format and extent of the final data handover as early in the project as possible. Further to this consideration should be taken early in the project on the content and format of all of the deliverables. Verco would recommend constructing an agreed data map for the envisaged project conclusion. Alongside this data map the team would also set out the proposed Quality Assurance (QA) plan for each deliverable.

1.2.2 Data collection:

The Verco team will lead on collection of data on technology performance whilst Currie and Brown will lead on the collection of appropriate cost parameters. Both teams will follow a common set of stages for data collection and populate the common data collection sheet. The tasks the teams will complete are as follows:

1. **Comparison of data requirements with internal databases and completing a literature review:** Both teams will compare the data requirements with information already held internally. Currie and Brown, for instance, having a costing database which has been used across hundreds of developments and comprises of hundreds of sources.

The review of internal datasets would be complemented by a literature review of published evidence. Identified papers would be assessed in terms of quality and key parameters needed for the study would be extracted and coded within the DCS.

Likely sources for such information include Central and Local Government (BEIS, GLA), Reference Guides (SPONS), NDPB Reports (Committee on Climate Change), Academic papers, Professional bodies (CIBSE) and industry groups (Federation of European Heating, Ventilation and Air Condition Associations).

2. **Identification of gaps, poorer quality sources or variables of material importance:** The teams will identify any variables for which source data is either missing, of poor quality (based on say age or known bias) or where the variable is particularly material. These data points will then be subject to more targeted investigation.

3. **Engagement with supply chain:** The teams will engage with the supply chain to provide updated information on those data points where further investigation is required. In Currie and Brown's extensive experience of undertaking such data gathering exercises the supply chain tends to be the most reliable source of information in such cases, provided suitable systems are in place to manage bias.

When engaging with the supply chain, trade associations or companies will be contacted directly through a series of targeted phone interviews with tailored questions targeted specifically at outstanding knowledge gaps. Any issues that are not resolved at this stage would then be raised again at the expert panel workshop held during the validation phase.

4. **Consult with Deep Dive experts:** For each of the sub-sectors identified as requiring deep dive experts – the team would undertake a structured telephone interview where the building and technology archetypes would be discussed and the current data presented. The deep dive expert will then be asked on their opinion of the input parameters being used. Each interview would be documented using an interview pro forma.

Beyond the sub-sectors already identified by BEIS as warranting a deep dive we would also propose that a representative from retail operations be interviewed. This mitigates the issues that will arise from reliance on mystery shopper records in the BEES sample.

Any issues that are not resolved at this stage would then be raised again at the panel workshop held during the validation phase.

5. Revisit building and technology archetypes: Following the completion of data collection the building and technology archetypes will be revisited with the client team to determine if any require modification.

2.3 Modelling:

The modelling stage comprises of developing the archetype model inputs, developing the model to handle the functionality extensions and calibrating the model following the cost benefit analysis:

1. Building and technology archetypes cost and performance attributes: The lifecycle projections for the archetypes will need to be developed based on partial/full replacement cycles and annual maintenance requirements. The team will also develop flexible cost and performance models for each asset type with marked up applicability by sector/archetype and size ranges.

2. Model development: A major model development will be undertaken. This will consider how the data inputs are provided to the model, how these are then processed and what the resolution of the outputs will be.

In terms of data inputs, information from the existing BEES sample and processed records from both the energy use model and the abatement model will need to be combined with the building and technology archetypes.

BEES models processing was undertaken using MS Excel products. We envisage this likely to remain the case for this project.

In terms of data processing, the model will be designed to process existing BEES data points and assess a range of technology archetypes. It will also cover the different costing dynamics for cost parameters will be incorporated. The cost effectiveness calculation will also comply with HMT Green Book guidance.

It is envisaged that BEIS require for each building archetype all applicable technology types to be assessed. This will allow BEIS to determine the suitability of a given measure and the factors which impact which system is adopted. An optimum configuration will then be determined for each record.

A second order issue, when compared to the more significant variables associated with location, region and access is appropriately modelling different characteristics of cost profiles. Distinctions would ideally be made between stepped fixed costs, linear costs and linear costs with minimum fixed costs associated with them.

On data outputs, due consideration will need to be taken on the resolution of outputs. This will be confirmed in terms of energy impact at end use level and also the degree to which the financial costs are separated into the underlying constituent variables, such as labour, parts etc.

3. Running cost benefit analysis: Once the model inputs and processing has been developed the cost benefit analysis will be run. We expect the analysis to require a number of iterations as key input variables are calibrated. We propose the following iterations:

a. Case study buildings: A case study building for key combinations of building types and technology type will be generated. This will reflect a series of common building and HVAC setups across sectors. This will provide an initial review of the performance of each archetype and identify where amendments are required.

b. Sector: It is proposed that a material but relatively well understood sector be adopted for pilot modelling. We would recommend running the initial analysis on the office sub-sectors. The sample size for this sub-sector is considerable and the energy characteristics are well understood. If the cost benefit analysis performs poorly it should be possible to determine the cause.

c. National: A number of national runs will be required as the model is calibrated for each of the subsectors that are included in the BEES sample.

This initial run of the results will be used to begin drafting the technical report. This will give the client team an opportunity to comment on the report style and requirements.

1.2.4 Validation

This stage involves two parts; engaging a panel of experts via an external body for an overall review and commissioning an industry expert for a detailed assessment of the model. For the latter work, we have already received agreements in principle to work together from a suitably qualified professional who has undertaken similar reviews for BEIS in the past:

1. Engage with external body: Verco would engage with selected external bodies and would arrange a workshop to assess the method and inputs. As part of BEES Verco undertook a number of sector workshops to support the development of assumptions within evidence base gathering projects. We are therefore well versed in running such events. In such workshops we would cover the following:

Presentation of case studies: To aid sense checking we first propose to present a series of low carbon HVAC pathways for case study buildings. This should act as a useful and accessible sense check on the key mechanics of the model.

Explanation of method: We would also present the method used in the model including key performance and cost parameters. We would walk participants through the processing method and also highlight any known areas of weakness and the steps taken to address these.

Document handover: The workshop would be supported by a limited handover of summary documentation to aid attendees in the vetting of the proposed method.

2. Independent review: A suitably qualified professional would also undertake an independent validation of the model, its inputs and the associated technical report. The finding would be presented to BEIS and written up in a report. Verco would appoint this expert but would seek BEIS approval on the candidate selected. For the purpose of the bid we have sought quotes from an example individual.

1.3 Reporting and handover:

Following the completion of the model validation Verco will undertake any updates required and generate a final set of results. The full technical report would then be drafted.

1. Model refinements: The result of the panel review is likely to lead to amendments to either inputs or key processing steps. The updates will be discussed with the client team and a proposed solution will be implemented in each case.

2. Results generation: A final full model run would be undertaken for all of the BEES sub-sectors. This data would then be transferred securely to the client team.

3. Report and wider deliverable finalisation: The technical report would be completed. An initial draft would have been generated using the provisional data. The Verco team will use the feedback received from the client team and peer review alongside the updated results to produce a final report. The team have budgeted 2 drafts versions of the report and a final version.

We intend to issue deliverables throughout the project. In the event that there are any further outstanding deliverables at this point in time then they would also be issued alongside the final report.

1.4 Programme management

Verco is experienced at delivering substantial programmes within challenging time horizons. We have delivered a number of major initiatives for BEIS involving large scale data collection exercises within constrained time periods. Our ability to manage and deliver projects effectively is due to:

Trained project managers: We have established a rigorous procedure for project initiation, planning, control, reporting and close out. These are implemented by PRINCE2 trained project managers. Verco is quality assurance accredited under ISO 9001.

- **In-house project management tools:** We have a web-based management tool, Project Minder. Using our resourcing system we can forward plan our resources. Our internal project management systems will flag up any delays, which will prompt remedial action.
- **Clear communication lines:** Verco will ensure communication lines with key individuals are clear. The project manager will be the direct contact but if the client team have any concerns regarding delivery of the programme the project director will also be available.
- **Key project meetings:** We propose to undertake a number of face-to-face meetings; a kick off meeting, an interim meeting and a close out meeting. These would be supplemented by monthly telephone calls. For further details please refer to Project Plan and Timescales section.
- **Dashboard and risk register:** To support transparency project progress will be recorded on a project dashboard, which includes a risk register. This is a tool that shows planned delivery against actual delivery of tasks. Where these differ a justification is provided. Tasks are also colour coded to reflect delivery against the initial schedule

1.5 Quality assurance

Quality assurance on the project will be managed through the following steps:

1. *Quality Plan Document* The project Quality Plan will be developed in detail during the preparation phase. This document will set out the QA procedures to be followed during the project and incorporate the QA log. The Quality Plan and QA log will become working documents, which will be updated by the Quality Assurance Director and Verco Managing Director, Dave Worthington.
2. *Team QA* The first level of QA will be performed within the project team, at regular meetings between the Project Manager and the Project Director. The internal team QA will closely monitor the outputs and interrogate assumptions used in the modelling. As a regular part of the project management, the internal QA process will capture any issues concerning the quality of outputs across the team and ensure that appropriate corrective actions are taken.
3. *Independent QA director* Before submission to BEIS, each of the key project deliverables will be reviewed and signed off by the Quality Assurance (QA) Director, Dave Worthington, who will be independent of the project delivery team but has detailed prior knowledge of the BEES project. Deliverables produced by Currie and Brown will be additionally signed off by their internal QA director.

Being independent of the remainder of the project, the QA director's responsibilities for maintaining quality standards are independent of concerns regarding project fee and timeline, these being the responsibility of the Project Manager.

The QA director role will provide independent challenge to the project results; ensure that all deliverables are completed to a very high standard and that all assumptions are logged in a clear and transparent fashion.

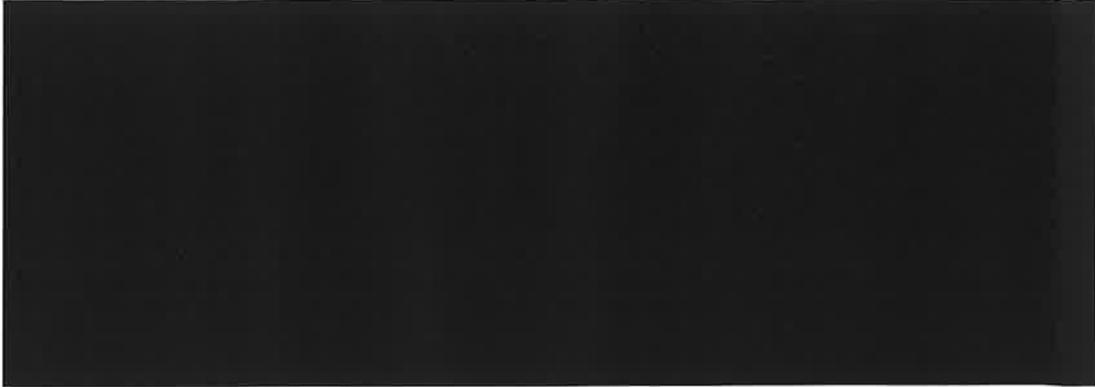
1.6 Dissemination

Verco and Currie and Brown would be very happy to support BEIS in the dissemination of project findings at industry conferences or via a series of webinars. By way of example, we are currently leading the technical development of a new energy efficiency investment standard. As part of this work we have attend 60 conferences across the industry advocating the initiative (<http://europe.eepformance.org/>).

Staff to deliver

The project team is a strong combination of deep technical expertise and experienced cost surveyors. Verco is a leading energy and carbon consultancy. We are experts in non-domestic energy efficiency and led the delivery of BEES. Currie and Brown is a leading asset management and construction consultancy with a track record in advising

governments and investors on the costs associated with low carbon heat technologies. The project team is set out below alongside with their roles on the project:



Key: PD: Project Director, PM: Project Manager, Del: Delivery, DG: Data gathering, NDS: Non Domestic Sector, HVAC: Technical knowledge of HVAC options both current and future, Cost.: Costings, Mod. : Modelling, BEES: Knowledge of BEES data, +: Familiarity of key concepts, ++ : Subject matter authority.

1.1 Verco team:

Verco is an award-winning UK consultancy specialising in sustainability, resource management and climate and energy policy. The Verco team is a unique and exceptional blend of consultants, engineers and software developers dedicated to mitigating the impacts of climate change and shaping the future of the low-carbon economy. We have a 29-year track record as a trusted advisor to national governments on energy policy. In recent years we have led major policy research for the UK's BEIS, DEFRA and Environment Agency on carbon reporting, non-domestic and industrial energy efficiency. We are also technical advisor to the £500m Mayor of London's Energy Efficiency Fund. As lead member of the consortium and chief policy expert, Verco will manage the programme activities and provide key policy insight.

1.1.1

() is head of policy, strategy and compliance. leads projects with FTSE 250 companies and major public sector clients, advising them on carbon policy and strategy. These include Aggregate Industries, BAE, BNP Paribas, British Land, Department of Energy and Climate Change (DECC), Ontario Teacher's Pension Plan, Peel Holdings and the Welsh Government.

delivers leading policy advice to government. He was the project manager for a £1.5million building energy efficiency survey programme across England and Wales which was delivered for government. He has also advised government on simplification of the CRC and EU-ETS, assessed the abatement potential in the public sector and appraised the quality of the industrial energy efficiency evidence base. In 2013, was nominated as Young Sustainability Executive of the Year at the prestigious Green Business Link awards.

1.1.2

() is a Senior Sustainability Consultant and PRINCE2 Practitioner project manager. is a trusted adviser to FTSE250 companies and government departments on climate change and energy policy, energy efficiency, sustainability strategy and wider environmental reporting.

delivers policy research and evaluation for government departments of the UK, Russia, South Africa and India, specialising in the areas of energy efficiency, carbon taxation

and climate finance. [REDACTED] provided analysis, strategy and project management for the Building Energy Efficiency Survey, a major (£1.5m) energy efficiency research programme.

1.1.3 [REDACTED]

[REDACTED] at Verco and with 30 years' professional experience in building performance and energy management is responsible for sustaining the highest levels of technical expertise throughout Verco on the energy efficiency of buildings. [REDACTED] sits on the BBP Sustainability Benchmarking Working Group and the Climate Bonds Initiative Low Carbon Buildings Technical Working Group, and has served on Advisory Boards for UK government Departments, the Green Construction Board, BSI, CIBSE and CEN Standards Committee TC89/WG4. He is author of numerous publications. [REDACTED] is an international expert on building performance standards and evaluation. He managed the PROBE studies (1995-2002), and was a Building Performance Evaluator for Innovate UK (2010-2014). He led two European projects which paved the way for non-domestic building energy performance certificates to be based on metered energy use (2002-2008). [REDACTED] was also the technical lead on BEES.

1.1.4 [REDACTED]

[REDACTED] is a principal consultant with 10 years of experience in sustainable energy and strategic analysis. He holds a Master's degree in Energy and Environmental Management (Glasgow Caledonian) and a BEng in Forest Engineering (Polytechnic University of Madrid, Spain). [REDACTED] specialises in complex energy modelling and his analysis has informed a wide range of policies and corporate strategies. He has worked closely with these organisations in all stages of the process, from the development of forecast models to set targets through to the identification of performance gaps and implementation of corrective measures to ensure delivery. He has also played a key technical role in renewable and low carbon energy studies commissioned by different government bodies to support planning policies and development strategies (including the Decentralised energy capacity study for the Greater London Authority).

1.1.5 [REDACTED]

[REDACTED] at Verco responsible for management and delivery of projects across Verco's diverse portfolio. He has specific knowledge and expertise in renewable energy technologies, energy efficiency, district heating, building energy analysis, financial modelling and energy auditing/management. [REDACTED] had a lead technical role in the Building Energy Efficiency Survey for the Department of Energy and Climate Change. [REDACTED] led the development of a modelling tool which generated a specific estimate for any premises' energy consumption at end use level based on a combination of extensive base data, information collected through the telephone survey, and information from complementary datasets.

1.1.6 [REDACTED]

[REDACTED] with Verco. [REDACTED] joined Verco in February 2018, following submission of her Engineering Doctorate examining the energy performance of multi-use venue buildings. She is experienced in analysing energy conservation measures for individual sites, compliance e.g. CRC, and post occupancy evaluation of buildings.

1.2 Currie and Brown team:

Currie and Brown is a leading asset management and construction consultancy with a track record in advising governments and investors on the costs associated with low carbon heat technologies.

1.2.1 [REDACTED]

[REDACTED] leads our specialist building engineering cost management team. A Fellow of the Royal Institution of Chartered Surveyors, he is an accomplished engineering services cost consultant with pre and post contract experience on schemes across the spectrum of built

If successful in our proposal, Verco will be primary contractor to BEIS, with Currie and Brown acting as our subcontractor.

1.1 Understanding of requirements

The decarbonisation of heat is essential if the UK is to meet long-term carbon targets. The CCC central scenario for Carbon Budget 5 targets non-electrical energy consumption reductions of ~75 TWh by 2035. This is circa 75% of the total demand reduction requirement.

BEES indicates that circa half of the reductions can be achieved through conventional energy efficiency measures (~34 TWh). Whilst this is a greater contribution than the CCC had originally forecast, this still leaves ~41 TWh which would need to be addressed through more fundamental low carbon heating measures.

Such measures were not included in the original BEES modelling. The data requirements needed from a telephone survey to accurately model such interventions resulted in a survey length and complexity which was considered untenable. Without having appropriate contextual information from the telephone survey, providing robust costings and estimates of impact was not considered viable.

The modelling of costs of energy efficiency measures across BEES more widely was a general challenge the study faced. There were a relatively limited number of cost parameters and variables used to derive intervention cost, and a high diversity of buildings modelled in terms of activities, systems and sizes. This meant that calculating cost parameters solely from the building characteristics was challenging.

This study will comprehensively address these gaps in knowledge. It will determine the **potential across England and Wales, to reduce carbon emissions by implementing low carbon space heating, hot water, ventilation and cooling (HVAC) technologies in non-domestic buildings.** In doing so it will consider:

1. Which contextual factors affect the application of a given technology type?
2. What are the costs and benefits associated with alternatives to traditional fossil-fuel based HVAC measures?
3. On the pathway to 2050, which sectors are most affected by the transition to the zero carbon economy?

1.2 Aims and objectives

The study will provide an evidence base on the applicability and cost effectiveness of low carbon heat measures. It is comprised of three stages;

1. *Data gathering:* data will be gathered from a range of sources on technology performance and costs as well as their applicability in the non-domestic stock. This would be supplemented with more detailed investigative works on subsectors which are either material and/or complex in terms of their HVAC requirements. The outputs from the data gathering stage and inputs to the modelling e.g. archetype structure, technical performance and cost parameters will be reviewed by a panel of industry experts.
2. *Modelling:* The data gathered will be used to develop building and technology archetypes. It will be possible to map these onto the existing BEES sample. The archetypes will be refined through industry consultation and then existing BEES models will be enhanced to calculate the cost effectiveness of alternative HVAC strategies across England and Wales.
3. *Validation:* The findings as well as key assumptions will be shared with a suitable external expert whose appointment will be agreed with BEIS. The expert will provide validation of the modelling and associated report.

1.3 Ensuring successful delivery

The Verco and Currie and Brown team are uniquely placed to ensure the programme is successfully delivered. This is because of the following reasons:

1. *BEES familiarity:* Verco project managed the delivery of BEES. Five of the key project team members of the original study, ranging from the project manager and project director to the technical lead and lead modeller are represented on the proposed project team.

This will mean no time is lost in data and model familiarisation. Furthermore the method we have developed is based on an in-depth understanding of the original study limitations and also our subsequent reflections on how the outputs from the original project could be improved through further studies such as this.

2. *Sector knowledge:* Verco and Currie and Brown have a deep understanding of the sectors covered by BEES. Verco has been advising on energy efficiency within non-domestic buildings for over 25 years, working with building owners and occupiers across all sectors included in BEES across a range of business sizes. This was reinforced through BEES where Verco assessed all the available evidence for energy efficiency across each sub-sector covered and supplemented this with expert interviews at the time. We have also recently audited the evidence pack for compliance with the Energy Savings Opportunity Scheme (ESOS) for over 100 organisations on behalf of the Environment Agency which has given us recent insights into the range of viable measures for large organisations across multiple non-domestic sectors.

Currie and Brown have dedicated sector teams covering all major non-domestic building types including, commercial offices, retail, industrial and storage, datacentres, health, higher education, schools, life sciences, hospitality and leisure and hotels. Our teams work closely with developers, occupiers, investors and contractors and so have a detailed and current understanding of the systems used in different contexts and the wide range of factors influencing decision making.

3. *Cost knowledge:* Currie and Brown run a specialist building engineering cost management team. They have pre and post contract experience on low carbon HVAC systems across the spectrum of built environment sectors in the UK and internationally.

They have used this knowledge across a range of studies into technically and commercially viable solutions for low carbon construction for over 10 years. These include reviews of Part L of Building Regulations and more recently major studies for the Committee on Climate Change and the Sustainable Energy Authority of Ireland.

4. *Industry links:* Currie and Brown and Verco have an exceptional industry network; covering both respected trade associations and professional bodies as well as individuals who are recognised experts in their respective fields.

In terms of trade associations and relevant research organisations, the project team have worked with or are members of over 20 different groups. This includes CIBSE, ESTA, UKGBC, ADE, BSRIA among others.

As part of BEES, Verco engaged with sector groups to drive programme engagement. We retain a directory of organisations worked with and could recontact them if required. Furthermore as part of BEES, we also identified subsector experts, who we interviewed as part of the method design. This register of professionals has been maintained by Verco and offers an immediate source of candidate specialists.

5. *Track record:* Verco and Currie and Brown have a track record of successfully delivering major policy commissions for government. Verco have worked with Government on a range of commissions including BEES and assessing the Wider Public Sector emission reduction potential through to supporting cost estimations of CRC and EUETS and advising on the evaluation of Climate Change Agreements.

Currie and Brown have advised the MHCLG (formerly DCLG) on the cost effectiveness of Building Regulations and are currently working with the Committee on Climate Change on the transition to the zero carbon economy.

6. *Data processing capability:* Verco have proven capability in the processing and analysis of major datasets, such as the data generated by BEES. We have a variety of tools that the team is trained in to undertake such analysis. These include R, a statistics software package, and Microsoft Power BI, a data analytics and visualisation package.

7. *Tool development:* Verco understand the BEES modelling tools in depth. This ranges not just from the inputs and standard processing techniques but also to the use of VBA to handle

batch analysis alongside the interaction between key models to generate BEES analysis. Our costings reflect our familiarity with these tools.

8. *Data handling:* When using the raw BEES sample data strict conventions on data security apply. The Verco team are experienced in handling these constraints and this should ensure the team can keep any delay resulting from inefficiencies due to the implementation of secure data management protocols to a minimum

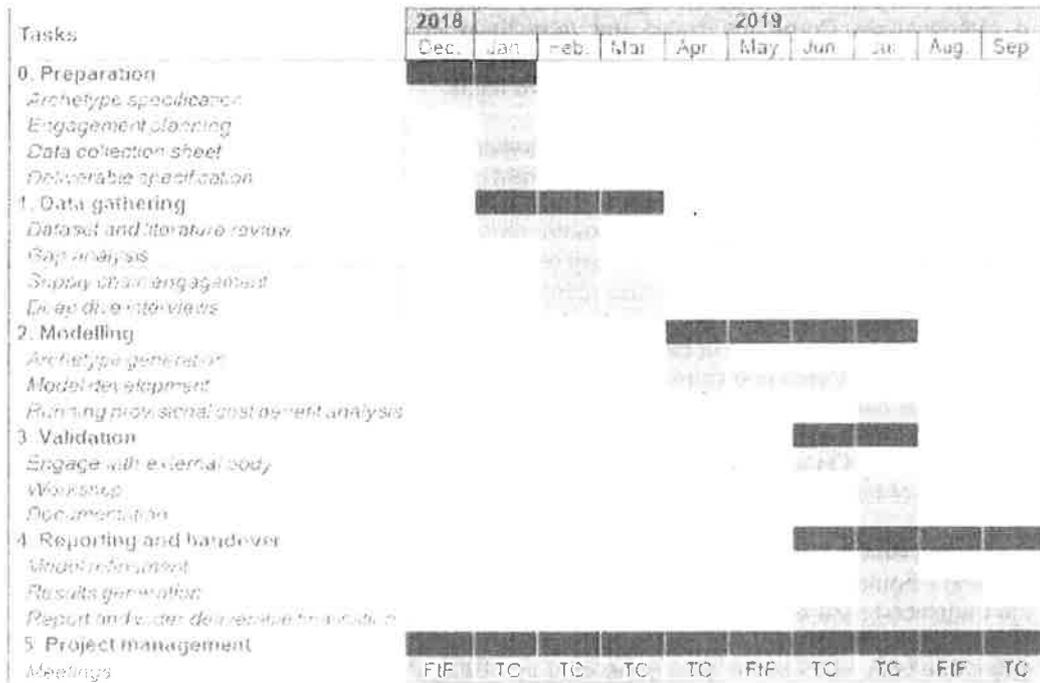
9. *Corporate advisory work:* Verco and Currie and Brown are advising companies on the most cost effective transition to a zero carbon economy. We can therefore draw directly on this corporate work, which has been appraised by senior managers from major corporates across a spectrum of sectors and investors assessing transitional risks within their investment portfolios, to act as a sense check on the recommendations arising from BEES.

10. *Archetype cost profiling:* Currie and Brown have previously developed cost archetypes for a range of HVAC system scenarios when assessing the impact of building regulation changes including zero carbon non-domestic buildings and cost optimal studies in line with the requirements of the Energy Performance of Buildings Directive.

11. *Project management:* The consortium have a proven track record in project managing major policy commissions. The proposed project manager is PRINCE2 accredited.

Project plan and Timescales

The project would commence in December 2018 and conclude in September 2019. Data gathering would be undertaken in Q1 2019. Modelling will be completed in Q2 2019 with validation and reporting being concluded in Q3 2019. The proposed project plan is set out below.



* F2F refers to face to face meeting and TC refers to Teleconference

Over this timeframe the deliverable schedule is as follows:

Deliverable	Date	Associated task completion
Literature review	Mar-19	Data gathering
Assumptions log	Jul-19	Modelling
A model and model outputs	Jul-19	Modelling
Underlying data	Jul-19	Modelling
A quality assurance log	Jul-19	Modelling
A draft technical repor	Jul-19	Modelling
A technical report	Sep-19	Reporting and handover
Report from independent review	Aug-19	Validation

To monitor progress we propose to have the following face to face meetings:

- Kick off meeting:** At the kick-off meeting deliverables will be reviewed, communication structures confirmed and milestone events will be discussed.
- Interim meeting:** At the interim meeting research progress and preliminary findings will be presented and performance will be discussed.

□ **Close out meeting:** The close out meeting will be an opportunity for the client to comment on final findings and provide feedback on overall project implementation.

The review meetings will be complemented by monthly progress calls between the client and project teams. In these meetings a project dashboard will be reviewed. This provides transparency on delivery progress.

Risk Management

A risk log will be 'owned' and maintained by the Verco Project Manager [REDACTED] and will be updated as risks are identified. The table below describes the risks we have identified for this project and our proposed response. We would propose to review this at the inception meeting and, following this, to produce a more detailed risk log.

For each risk we would include: Risk description; Implication; Level of Impact (I); Likelihood (L); Rating (IxL); Strategy; Mitigating Actions; Owner; Contingency Plan; Comments; and Date/Version. Project risks would be reported within the regular progress update unless deemed to pose a serious threat, in which case they would be communicated to the BEIS project manager immediately.

Risk	Likelihood	Potential impact	Management response
Sector engagement: May take more time or effort than planned to secure the necessary participation from sector experts.	Likely	High	<ul style="list-style-type: none"> Utilise existing connections to trade associations to enhance success Utilise existing network of experts from BEES to increase participation of sector experts Design feedback processes to have minimum administrative burden by designing key information well and presenting decision points clearly
Data availability	Neither likely or unlikely	Moderate	<ul style="list-style-type: none"> Utilise existing proprietary datasets constructed by Verco and Currie and Brown – These have been developed over hundreds of projects Currie and Brown are experienced in gathering accurate costing information from supply chains and have a proven track record in undertaking such work
BEES sample limits	Unlikely	High	<ul style="list-style-type: none"> Undertake mapping of BEES sample data with likely cost parameters at an early stage in the programme Where necessary develop methods to interpolate cost parameters based on known variables
Retaining suitable budget for data handover	Likely	Moderate	<ul style="list-style-type: none"> Ensure deliverables are clearly specified at project inception Agree on data format requirements at project inception Undertake reviews of data format and content at key project milestones

Not meeting the project objectives	Very unlikely	High	<ul style="list-style-type: none"> Regular internal management group meetings to establish precise expectations for each stage. Fortnightly progress updates to BEIS. Contractor partnership offers suitably tailored combination of knowledge, skills & experience.
Data Protection failure	Very unlikely	High	<ul style="list-style-type: none"> Verco operate a data protection system that complies with BEIS requirements All consortia partners will be required to
Risk	Likelihood	Potential Impact	Management response
			<ul style="list-style-type: none"> implement Verco or other data protocols in line with BEIS requirements. The Project Manager will monitor data transmission and other relevant activity to ensure compliance with Verco / BEIS policy. In the event of a failure, BEIS will be alerted as soon as the incident is logged.
Unanticipated change in consortium team e.g. due to illness	Unlikely	Low	<ul style="list-style-type: none"> Designated Project Supporter who can step into Project Manager role as required. Project involves several Verco staff capable of assuming additional duties/responsibilities as required. Any new or substitute team members agreed with BEIS in advance.
Lack of communication between partners in the consortia.	Unlikely	Medium	<ul style="list-style-type: none"> Close and regular engagement between lead contacts for each member of the consortia. Internal team catch-ups prior to each update with BEIS. Integrated research design promoting joint working and shared knowledge.
Conflicts of interest	Unlikely	Medium	<ul style="list-style-type: none"> All data provided by suppliers will be cross checked against both internal databases and also sector experts

