



ITS Testing Services Ltd  
Academy Place,  
1 – 9 Brook Street,  
Brentwood,  
Essex,  
CM14 5NQ

Tuesday, 08 January 2019

Dear Sir/Madam,

Contract Title: Safety of Domestic Battery Energy Storage Products

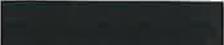
Contract Reference: UK SBS CR18171

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
Annex A	GDPR

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](mailto:Research@uksbs.co.uk)

# S1 - PRECEDENT CONTRACT FOR THE PURCHASE OF SERVICES

## SECTION A

This Contract is dated 08<sup>th</sup> January 2019.

### Parties

- (1) **Department for Business, Energy and Industrial Strategy**, 1 Victoria Street, London SW1H 0ET (**The Contracting Authority**).
- (2) **ITS Testing Services Ltd**, Academy Place, 1 – 9 Brook Street, Brentwood, Essex CM14 5NQ, (**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 issues by the Information Commissioner or relevant government department in relation to such regulations.

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

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

**Intellectual Property Rights:** all patents, rights to inventions, utility models, copyright and related rights, trademarks, service marks, trade, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, 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 3 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 £2 million per claim;

B8-1-2 public liability insurance for not less than £5 million per claim (unlimited claims); and

B8-1-3 employer liability insurance for not less than £5 million per claim (unlimited claims) ;and

B8-1-4 product liability insurance for not less than £5 million for claims arising from any single event and not less than £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 £100,000.
- 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 **Error! Reference source not found.,Error! Reference source not found.,Error! Reference source not found.** 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)

1. **Data Protection** The Supplier will be compliant with the Data Protection Legislation, as defined in the terms and conditions applying to this

opportunity. A guide to The General Data Protection Regulation published by the Information Commissioner's Office can be found [here](#).

The only processing that the Supplier is authorised to do is listed in Annex A by the Contracting Authority and may not be determined by the Supplier.

### **Annex A: Processing, Personal Data and Data Subjects**

(1) The contact details of the Contracting Authority Data Protection Officer are:

The Contracting Authority Data Protection Officer  
 Department for Business, Energy and Industrial Strategy  
 1 Victoria Street  
 London  
 SW1H 0ET

Email: [dataprotection@beis.gov.uk](mailto:dataprotection@beis.gov.uk)

(2) The contact details of the Supplier Data Protection Officer (or if not applicable, details of the person responsible for data protection in the organisation) are:

(3) The Supplier shall comply with any further written instructions with respect to processing by the Contracting Authority.

(4) Any such further instructions shall be incorporated into this Annex A.

Description	Details
Subject matter of the processing	<p>The processing is needed in order to ensure that the Contractor can effectively deliver the contract entitled <i>Safety of Domestic Battery Energy Storage Products</i>.</p> <p>The processing of names and business contact details of staff of both the Authority and the Contractor will be necessary to deliver the Services exchanged during the course of the Contract, and to undertake Contract and performance management.</p> <p>The processing of the contact details of stakeholders consulted will be necessary to perform the contract.</p>

	The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract
Duration of the processing	Processing will take place for the duration of the contract.
Nature and purposes of the processing	<p>The nature of processing of the Authority and Contractor details will include the storage and use of names and business contact details of staff of both the Authority and the Contractor as necessary to deliver the Services and to undertake Contract and performance management. The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract.</p> <p>The processing of the contact details of stakeholders consulted will be necessary to perform the contract.</p>
Type of Personal Data	<p>Names, business telephone numbers and email addresses, office location and position of staff of both the Authority and the Contractor as necessary to deliver the Services and to undertake Contract and performance management. The Contract itself will include the names and business contact details of staff of both the Authority and the Contractor involved in managing the Contract.</p> <p>The contact details of stakeholders consulted.</p>
Categories of Data Subject	<p>Staff of the Authority and the Contractor, including where those employees are named within the Contract itself or involved within contract management.</p> <p>The contact details of stakeholders consulted</p>
<p>Plan for return and destruction of the data once the processing is complete</p> <p>UNLESS requirement under European Union or European member state law to preserve that type of data</p>	<p>The Contractor will provide the Authority with a complete and uncorrupted version of the Personal Data in electronic form (or such other format as reasonably required by the Authority) and erase from any computers, storage devices and storage media that are to be retained by the Contractor after the expiry of the Contract. The Contractor will certify to the Authority that it has completed such deletion.</p> <p>Where Personal Data is contained within the Contract documentation, this will be retained in line</p>

	with the Authority's privacy notice.
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### GDPR Questionnaire

The Supplier agrees that during any term or extension it shall complete and return the attached questionnaire as advised below.

Note: the Contracting Authority also reserves the right to amend or increase these frequencies, as it deems necessary to secure assurance with regards to compliance.

The Contracting Authority requires such interim assurances to ensure that the Supplier is still compliant with the needs of the GDPR Act due to the implications of a breach.

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



GDPR Assurance  
Questionnaire May1

## 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 os Statement  
of Assurance Questio

**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)

<b>Order</b>	
<b>Order Date</b>	
<b>Revision</b>	0
<b>Revision Date</b>	
<b>Payment Terms</b>	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/SSCPOterms.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 CR18171 – Safety of Domestic Battery Energy Storage Products, as outlined in Appendix A – Specification and Appendix B – Bid Response.

#### D2 COMMENCEMENT AND DURATION

D2-1 This Contract shall commence on Wednesday, 9<sup>th</sup> January 2019 and subject to any provisions for earlier termination contained in the Standard Terms shall end no later than Thursday, 25<sup>th</sup> April 2019.

#### D3 MANAGEMENT AND COMMUNICATIONS

D3-1 The Customer appoints: [REDACTED] Office for Product Safety & Standards, 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] TS Testing Services Ltd, 12 Davy Avenue, Knowlhill, Milton Keynes MK5 8NL, [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 £54,720.00 excluding VAT in accordance with the Contract price and breakdown submitted for this contract detailed below:



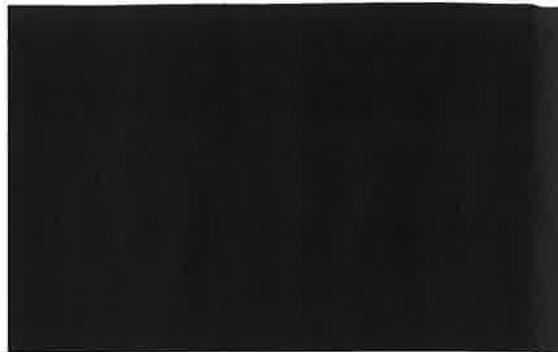
AW5.2 Price Schedule

<b>OUTBOUND REFERENCE</b>		<b>CR18171</b>			
<b>FUNCTIONS (INCLUDE AT TITLE)</b>		Safety of Domestic Battery Energy Storage Products			
<b>TENDER NAME</b>		Inshore Testing and Certification Ltd			
Please complete the attached yellow sections only					
<b>Section 1</b>					
Category	Number of Days	Total Fixed Costs (inc VAT)	Comments		
Preparation	1	£5,000			
Costs Definition/Commission	1	£5,000			
Start-up	1	£5,000			
Operational assistance	1	£5,000			
Final Meeting	1	£5,000			
Handover	1	£5,000			
Project Management	1	£5,000			
Handing	1	£5,000			
Other Costs	1	£5,000			
<b>TOTAL FIXED PRICE</b>		<b>£ 64,728.96</b>			
<b>Section 2</b>					
Job Title	Category Area (Please select from the dropdowns below)	Number of Days	Hourly Day Rates (including VAT @0%)	Estimated Day rates (including VAT @0%)	Fixed Cost (£ inc VAT)
Kick off meeting	Meetings	1			
Discovery phase	Data Collection/Comparison	1			
Costs collection comparison phase	Collection of evidence	1			
Analysis phase	Analysis	1			
Completion of end testing phase	Testing	1			
End testing discussion meeting	Meetings	1			
Reviewing phase	Analysis	1			
Final report phase	Writing	1			
Final presentation of findings at MIRA London office	Meetings	1			
<b>TOTAL FIXED PRICE</b>					<b>£ 64,728.96</b>

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 INTERTEC LTD  
**(The Supplier)**

Signed  
Name  
Position  
Date



For and on behalf of .....  
**(The Contracting Authority)**

Signed  
Name  
Position  
Date



**THIS IS THE LAST PAGE OF THESE TERMS & CONDITIONS**

## - Appendix A Specification

### Background

The Office for Product Safety and Standards ("the Office") was created in January 2018 by the Department for Business, Energy and Industrial Strategy (BEIS), and takes forward the work of the previous Regulatory Delivery directorate. Responsibilities of the Office include:

- Giving detailed advice on the interpretation of safety related regulations, and sits on many standard making committees.
- Responding to incidents where the safety of a consumer product is called into question.
- Offering policy advice to HMG on product safety issues.
- Enforcement of a wide range of other product standards and regulations, including WEEE, RoHS, Ivory and Conflict Mineral regulations.
- Support of businesses through an expanded "Primary Authority" scheme to act as a single point of information for a wide variety of regulations impacting business.
- The work of the former national Measurement Organisation is also within the Office, which brings a world class test and measurement capability.

This project is being recruited as part of the BEIS Office for Product Safety and Standards Strategic Research Programme (SRP), which was launched in March 2018. This programme provides high quality strategic science-based research to strengthen the evidence base for Safety and Standards policy development, delivery and enforcement, giving business the confidence to innovate and protecting consumers from unsafe products. The wide range of evidence based research supported by the SRP helps to address critical questions relating to current product safety, and/or issues that might arise due to future market developments.

In particular the programme is keen to understand the safety risks to the consumer of products that are just emerging on to the market, of which one is the new category of Domestic battery energy storage products. Domestic battery energy storage allows the user to buy and sell electricity at times that are financially advantageous. This is particularly beneficial when used in conjunction with solar power and/or Demand Side Response (DSR). Some systems can also offer limited off-grid capability in the event of a mains power failure.

The economic value of battery energy storage increases the further down the distribution network that it is sited. Hence domestic level energy storage is interesting to the Distribution Network Operators (DNOs). The costs are becoming more attractive as battery prices fall, and the payback on investment should improve as net metering allows more variable tariffs.

Domestic battery energy storage systems using Li-ion batteries are now commercially available, but there is a concern that failure of these batteries could be a new source of domestic fire. There is considerable activity concerning the safety of batteries used at grid level (MWh), but much less attention to date given to domestic scale energy storage systems (typically 2 - 10kWh). This work will help to address this knowledge gap.

### Aims and Objectives of the Project

The aim of this study is to understand best practice in the design and installation of domestic battery energy storage systems, in particular to minimize the danger of fire arising from battery or other component failure.

The objectives of this work are to give Office policy makers a clear understanding of the safety risks to consumers due to the malfunction of domestic battery energy storage systems, and suggest ways in which these risks can be mitigated.

In particular, the work should give guidance on both preventing battery failure, and protection in the rare event of battery failure. This will include considerations of mechanical packaging, operating temperature and cooling systems, cell and whole battery condition monitoring, and charge/discharge regimes.

### **Suggested Methodology**

The contractor will undertake the following activities:

- a. Attend a formal Kick Off meeting at BEIS London office. A key output of this will be finalisation on the detailed scope of work as based on this specification.
- b. Undertake Desk analysis and 1:1 Consultations with key stakeholders to understand:
  - The characteristics of battery fires in Domestic battery energy storage units. This should consider commonly used types of batteries, and should take account of how they are used and installed in domestic energy storage units.
  - Best practice in the design of battery management systems to minimise the risk of battery failure in Domestic battery energy storage systems.
  - The design and installation of enclosures of Domestic battery energy storage units to minimise risk of fire spreading outside the enclosure.
  - The work should include consideration of the safety issues relating to balance of system parts (such as charger, inverter, protection and controls) within the energy storage unit enclosure. This should include consideration of the risks of failure of these items and the resultant safety implications. There should also be consideration of the impact that this might have on other components, such as batteries.
- c. Submission of a Draft final report to the BEIS Project Monitoring Officer. This report, indicatively 50-100 pages long, shall be of publishable quality. The aim is that this draft shall be reviewed by BEIS and returned to the contractor within 2 weeks of receipt.
- d. Hold a Stakeholder meeting to check assumptions and reactions to draft project findings. A draft Powerpoint pack to be used at the meeting should be submitted to the BEIS project Manager one week before.
- e. Create and deliver a presentation about the project to BEIS staff at our London office.
- f. Submission of an Accepted final report, taking into account comments received on the draft final report, to the satisfaction of the BEIS Project Monitoring Officer.

### **Project Reporting**

- A monthly progress report shall be submitted, that will form the basis of a monthly project meeting, by phone, with the Project Manager. A template will be provided for this report.
- Short mid-monthly email progress reports should be supplied, which should succinctly summarise recent and imminent work activity, and flag up any problems that might lead to delay.

### Project Scope

The design of battery management systems is likely to be the focus of this work, and so should be considered in detail, whether they are integrated into the battery, or separate from it.

This work excludes detailed discussion of cell design and performance, as this is beyond the influence of product designers. But the specification of batteries, as far as it impacts safety, should be included in the report.

The work excludes detailed consideration of its location in the house, but the findings should be sufficient that it is possible for a buildings expert to understand where it is reasonable to install the product.

The work excludes any safety issues related to the AC or DC (where used) wiring that is external to the storage unit, or to any external switchgear or protection.

The work excludes any safety issues relating to imposed loading on the local electrical network safety.

The economics of these products are outside the scope of work. However, where appropriate, a rough indication of the costs of any suggested safety measures would be useful.

**Re-manufactured (2<sup>nd</sup> life) batteries present additional safety issues. This is intended to be the subject of a subsequent study, and so is out of scope of this project. The intention is that the focus of this further study will be on the additional safety risks when using second life batteries.**

This project should provide a sound evidence base of this subject, with the key findings summarised in an Executive Summary. There is no requirement to write a Conclusion or Recommendations section of the report.

Note on stakeholders: London Fire Brigade, Electrical Safety First and the Renewable Energy Association should be regarded as core stakeholders. In addition, it is expected that the contractor will identify some further stakeholders who can make useful input. It is expected that the contractor would indicatively engage with a minimum of 5 relevant stakeholders during the study. If wished, the Office can send a note of introduction to all stakeholders to explain the nature of the project and the contractor's role in it.

Note on the stakeholder meeting: the Office will host the meeting at its 1 Victoria St, London office, and will send out invitations on behalf of the contractor. To ensure a good choice of dates and rooms, it is suggested that the room is reserved at least 8 weeks in advance.

### **Deliverables**

Week1: Project Kick Off meeting

Week 14: Stakeholder Discussion Meeting

Week 18: Draft Final Report

Contract Number: CR18171

Week 22: Final report

Week 24: Final Presentation of findings at BEIS London office

**NB**

*The above is a suggested timeline only, tenderers are welcome to suggest alternatives that will enable the project to progress at a similar pace whilst meeting the final deliverable date.*

*It is important that as much of the work as is reasonably possible is completed by end March 19. Please consider this when developing the project timeline.*

## - Appendix B Bidder Response

### APPROACH

The aim of this study is to understand best practice in the design and installation of domestic battery energy storage systems, A key objective is to minimise the danger of fire arising from battery or other component failure.

The objectives of this work are to give Office policy makers a clear understanding of the safety risks to consumers due to the malfunction of domestic battery energy storage systems, and suggest ways in which these risks can be mitigated.

Intertek proposes to perform the project in seven phases:

- Kick-off meeting
- Discovery phase
- Data collecting/compilation phase
- Analysing phase
- Documentation of draft findings
- Reviewing phase
- Documentation of findings and preparation of final report

#### Discovery phase

Reviewing the present domestic battery energy storage market in UK.

o A brief review of the domestic battery energy storage market in UK is performed. The review will focus on sizes of the energy storage units in Wh, the type of lithium-ion technology that is used (e.g. LFP, LTO, NMC etc.), system components used, and type of safety protections used. The review is based on publicly available information such as data sheets, interviews with stakeholders and presentations from industry conferences.

#### Kick-off meeting

This will be a formal Kick Off meeting at BEIS London office. A key output of this meeting will be finalization on the detailed scope of work.

#### Data collecting/compilation phase

Summarising the main characteristics of battery fires in domestic battery energy storage units.

o The main characteristics of battery fires will be summarised. This will consider commonly used types of batteries and will take account of how they are used and installed in domestic energy storage units. Information will be collected by reviewing research articles, presentations from industry conferences and interviews with stakeholders.

Summarising current technical regulations in UK and international standards applicable for Domestic battery energy storage units.

o The current technical regulations in UK and standards applicable for domestic battery energy storage units will be summarised. Technical standards from for example BSI, EN, IEC and UL will be considered. Special focus will be given to requirements on the battery management system. Information will be collected by reviewing publicly available information, searching standard databases and interviews with standard committee members.

Summarizing safety risks and risk mitigation methods associated with domestic battery energy storage systems.

o Safety risks and risk mitigation methods used in domestic battery energy storage systems will be summarised. Special focus will be given to the design of the battery module, BMS, enclosure and balance of system parts. Information will be collected by interviewing key stakeholders, compiling information from the two steps above and reviewing publicly available research literature.

## Analysing phase

Analysing of safety risks and best practice in the design and installation of domestic battery energy storage systems. The analysis will be based on the findings in the data collecting and compilation phase as well on Intertek's extensive experience of battery performance and failure modes.

o Best practice in the design of battery energy storage units to minimise the risk of battery failure in domestic battery energy storage systems.

- Best practice in module designs
- Best practice in the design of battery management systems
- Best practice in the design of enclosures

o Best practice in the design of balance of system parts

o Best practice in the installation of domestic battery energy storage systems to minimise risk of fire spreading outside the enclosure.

## Documentation of draft findings

The draft findings in the discovery, data collecting/compilation, analysing phase will be documented in a power point pack for a stakeholder meeting.

## Reviewing phase

The assumptions and draft findings will be reviewed based on the feedback and reactions from the stakeholder meeting.

## Documentation of findings

A draft final report will be prepared and submitted to the BEIS Project Monitoring Officer. After getting feedback from BEIS, an accepted final report, taking into account comments received on the draft final

report, will be prepared and submitted to the BEIS Project Monitoring Officer. A final presentation about the project is delivered to BEIS staff at their London office.

## Dissemination

Intertek has a global network and regularly gives presentations on national and international relevant industry conferences. Intertek also gives webinars on a regular basis in specific technical topics to interested stakeholders. Intertek see the topic of this study as an important relevant question for many stakeholders and see how the findings of the study may be shared in presentations at conferences and webinars in order to stimulate the policy debate. The findings could also be brought into the relevant technical standardization committees in which Intertek is already present. In addition stakeholder sponsored presentation tour across select UK cities could also be an alternative for communicating the results of the study.

## STAFF TO DELIVER

Intertek is a leading provider of services for testing, inspecting and certifying products; we help customers improve performance, gain efficiencies in manufacturing and logistics, overcome market constraints, and reduce risk. We've earned a reputation for helping our customers increase the value of their products, gain competitive advantage, and develop trusted brands. Intertek is the industry leader with more than 42,000 people in 1,000 locations in over 100 countries.

Intertek's energy storage specialist team is a leading provider of testing and advisory services for batteries. With more than 50 years proven track record in evaluating power sources, Intertek has developed a deep understanding of operating conditions across a wide range of end-use applications. From electric vehicles to personal electronics to renewable energy, Intertek has a depth of experience in battery testing services; ensuring energy storage technologies meet performance, reliability and safety criteria. Intertek assesses more than 20,000 batteries each year, covering all chemistries and sizes. We are recognized for our uncompromised independence and client confidentiality, world-class testing facilities, and well-founded application advice.

The Intertek energy storage group have long experience from managing national and international projects within the field of battery technology that includes several stakeholders in various industries such as vehicle, defence and consumer electronics. Selected track records of work performed by the Energy storage group at Intertek. Intertek are continuously participating as a partner on national and international battery related collaborative research projects developing our expertise in selected areas, such as

- Battery testing methods
- Standardization development
- Advanced battery dissection techniques and analysis methods
- Assessment of battery ageing
- Second-life applications for EV batteries

Intertek are on a regular basis asked to investigate and evaluate the root cause of accidents related to battery technology. Failure analysis is a service where we offer years of experience from battery testing, manufacturing and research combined with our electrochemical expertise in order to make a thorough assessment of the root cause of the battery failure. Intertek employs a systematic investigation approach for failure analysis. Depending on the type of failure, activities listed below are often involved:

- Situation appraisal
- Review of documentation and certification documents
- Review of battery and electronics design
- Critical examination of supporting documentation such as: FMEAs; manufacturing

control charts; analysis of design fundamentals; and product release criteria.

Dissection and analysis of failed and fresh cells

Material analysis such as CT-scanning, SEM-EDS, X-ray, GC-MS etc.

Verification of the failure by testing

Technical manufacturing audit, looking for deviations from industry design/process best practices

Selection of failure analysis performed:

Provided technical advice including detailed battery autopsy for a fire involving a Li-Ion battery in home energy storage and evaluated the risk for further incidents.

An insurance company asked us to give an independent statement on probable cause of a battery fire in a hybrid electric city bus. Our statement was used in settling a cost dispute.

A UPS system supplier contracted us to give an independent statement of safety risks related to a specific UPS battery installation methodology. Our statement was a prerequisite for approval of the installation.

A battery reseller asked us to give an independent statement on probable cause of a cellular phone battery explosion.

## Biographies of staff

The following key experts from Intertek will be involved in the project.

Name: [REDACTED]

Role at Intertek: Director - Assurance team in UK

Experience:

- 11 years within Intertek, involved in certification and managing business lines for energy technologies and ecodesign.
- 10 years of experience in Electronic Design and Product Development.

Qualifications:

Chartered Electrical Engineer and a Member of the Institute of Engineering and Technology (IET).

Has been working in certification since 2004 and has more than 10 years of experience in Electronic Design and Product Development.

Examples of projects:

Numerous of failure analysis of lithium ion batteries used in various applications from consumer electronics to vehicles.

Give courses in li-ion battery technology including regulatory and safety aspects on a regular basis.

Name: [REDACTED]

Role at Intertek: Senior Battery Specialist

Experience:

- 12 years within the Energy storage advisory group at Intertek/Sagentia Catella
- 1 year as COO for a micro fuel cell start up,
- 5 years as an independent battery consult working with both large corporate and small entrepreneurial battery enterprises,
- 8 years as R&D Program Manager at Energizer Battery and
- 13 years as R&D Engineer at Energizer Battery.

Qualifications:

Co-author of Intertek's white paper: Battery Energy Storage Systems (BESS) for On- and Off- Electric Grid Applications.

B.S. M.S. Chemistry from Wake Forest University, Winston-Salem, NC Examples of projects:

Performed numerous technical due diligence program assessments for investors looking for robust battery investment

Technical battery manufacturer audits related to battery failures or qualification of new battery as Intertek's lead auditor for battery manufacturers.

- Identified the root cause for a 12% failure of a large BESS for wind farm application.

Name: [REDACTED]

Role at Intertek: Senior Battery Specialist

Experience:

8 years within the Energy storage advisory group at Intertek

6 years of academic research experience within the field of lithium-ion cells.

Qualifications:

- Invited speaker at several international battery conferences

Ph.D. in Applied Electrochemistry at The Royal Institute of Technology (KTH), Stockholm

M.Sc. in Chemistry and Chemical Engineering at The Royal Institute of Technology (KTH), Stockholm

Examples of projects:

Safety and risk assessment of thermal runaways in a lithium battery pack for a global electronics company

- Thermal runaway characterization of lithium-ion batteries for the defence industry.

Name: [REDACTED]

Role at Intertek: Senior Energy Storage Specialist

Experience:

8 years within the Energy storage advisory group at Intertek and

7 years of academic research experience within the field of lithium-ion cells.

Qualifications:

Expert member in IEC TC 21 WG10 in the development of IEC 62485- 5: Safety requirements for secondary batteries and battery installations – Part – 5: Safe operation of stationary lithium-ion batteries.

Ph.D. in Applied Electrochemistry at The Royal Institute of Technology (KTH), Stockholm

M.Sc. in Chemistry and Chemical Engineering at The Royal Institute of Technology (KTH), Stockholm

Examples of projects:

Numerous of failure analysis of lithium ion batteries used in various applications from consumer electronics to vehicles.

- Give courses in li-ion battery technology including regulatory and safety aspects on a regular basis.

Name: [REDACTED]

Role at Intertek: Senior Lab Engineer/Reviewer

Experience:

20 Years of experience in the battery industry working on battery chemistries such as lithium, NiMH, NiCad and lead acid batteries.

Qualifications:

Experienced in the transportation requirements of lithium batteries and internal make-up of most cell and battery types.

Is well-versed in electrical and mechanical testing of batteries and his knowledge includes battery standard derived from EN, IEC, RTCA and MIL sources.

## UNDERSTANDING THE PROJECT ENVIRONMENT

The cost of batteries is dropping. Environmental concerns are rising. A ground swell of interest in the application of battery energy storage systems (BESS) for home use is happening. Though many barriers still exist (cost, reliability, safety), there seems to be an inevitability of the widespread adoption of residential battery energy storage.

The design and installation of domestic BESS requires a broad scope of technical competencies: electrical and battery technical expertise as well as knowledge and application of all pertinent electrical codes and safety requirements. In section PROJ 1.2 We have summarised Intertek's breadth, depth and scope of service offerings. With a worldwide presence and technical expertise, Intertek is well positioned to play a significant role in the development of safe BESS for residential application.

For BESS, the constructional and electrical expertise is relatively straight forward. Problems related to system fabrication and construction will soon be resolved. Safety standards and construction guidelines will be refined and revised as issues arise and are solved. Similarly, problems stemming from improper electrical configuration and sizing will be captured in revised electrical codes for BESS design and installation. Intertek's position is that the battery component and the battery management system (BMS) of the BESS portion is more complex. Many factors must be considered in the design of robust, safe batteries and BMS.

Existing battery standards address performance and safety and although they undergo continuous review and improvement, they cannot address the full range of complexities involving battery design and manufacture. The IEEE, for example, has issued excellent guidelines for the design and construction of Li-Ion cells and batteries. These guidelines start with the requirement that the batteries and cells have passed all relevant IEC certification test requirements and dive deeper into technical aspects of cell design and BMS design. The wireless organisation, CTIA, has taken the IEEE guidelines and converted them into a pass/fail system certification. Despite all this attention to safety, many and varied Li-Ion field failures continue, reported almost on a daily basis. Phenomena occurring at the nanoscale remain poorly understood. These electrochemical processes are complex and very difficult to accurately model and predict. Modest changes in chemistry or construction could have severe consequences.

Providing technical battery expertise is a particular strength of the team assembled for this project. Intertek has conducted many battery failure analyses over the years, ranging from highly publicized cell phone failures to little known MWh Li-Ion BESS. Although the BESS industry is still quite young, Intertek has several experiences to share:

Intertek Energy Storage Consulting has published a white paper: "Battery Energy Storage Systems (BESS) for On- and Off- Electric Grid Applications".

Intertek Energy Storage Consulting was successful in the failure analysis of a large Li-Ion BESS wind farm application (a day one failure).

Intertek Energy Storage Consulting has audited Li-Ion manufacturing for acceptance for a company's first introduction of a large wind farm BESS.

Intertek's Assurance Group has assisted in the design and installation of Li-Ion BESS for a residential application.

Intertek's Assurance Group has consulted on the design and installation of several large commercial BESS.

With our global presence, Intertek has ready access to teachings from UK, European and US entities. US National Labs, in particular, have published several highly relevant papers on the design, installation, and safety of BESS. Our plan would be to use our network of contacts together with interviews of stakeholders, review of publicly available research literature and review of international standards to supplement existing UK standards and generate a robust set of best practices for the design and installation of safe domestic BESS.

Example of data sources, entities and research relevant to the project:

#### UK and Europe

- BS EN standards
  - BS EN 62619 covers safety requirements for secondary lithium cells and batteries used in industrial applications including stationary applications
  - BS EN 62133-2 covers safety requirements for portable lithium-ion cells and for batteries made from them, for use in portable applications.

- IEC standards
  - IEC 62485-5 covers safety requirements for lithium-ion batteries and battery installations. The standard is currently under development and has not been published yet.

IEC 62933 series, a standard series under development for electrical energy storage systems.

- German standards
  - VDE-AR-E 2510-2 and VDE-AR-E 2510-50, covers safety requirements for stationary electrical energy storage systems intended for connection to the low voltage grid and stationary battery energy storage system with lithium batteries.

- DNV-GL
    - DNVGL-RP-0043, recommended practices for grid-connected energy storage systems US
- Integration of US National Labs' body of knowledge, where appropriate. Example:

National Renewable Energy Lab (NREL)

Electric Power Research Institute (EPRI)

- Argonne National Lab

Pacific Northwest National Lab (PNNL)

Sandia National Lab (SAND)

US Department of Energy (DOE)

National Fire Protection Agency (NFPA)

NFPA 855 Standard for the Installation of stationary Energy Storage Systems (proposed standard in draft version)

NFPA 70, installation code that addresses the installation of electrical equipment, communications equipment, and optical fibre cables in commercial, residential, and industrial occupancies.

Article 480 applies to stationary batteries that provide an independent source of power for emergency lighting, switchgear control, engine-generator set starting, signal and communications systems, laboratory power, and similar applications.

Article 705 has expanded and applies to power-production systems connected to the electrical

grid.

NFPA 1, fire code that covers fire safety for the public and first responders and provides a comprehensive approach to fire code regulation and hazard management.

Hazard Assessment of Lithium Ion Battery Energy Storage Systems, a final report for a research program with the objective to develop a technical basis for the safety of Lithium ion BESS through a fire hazard assessment.

Applicable UL standards

UL 1973 covers battery systems for solar photovoltaics, wind turbine storage, and other stationary applications as well as for light electric rail applications.

UL 9540, a newer standard that covers energy storage systems for storing energy from power sources or providing electricity to power conversion equipment, for example electrical charging or discharging equipment.

UL9540A, description of a test method for evaluating thermal runaway fire propagation in battery energy storage systems

Considerations of fire propagation in residential BESS:

The majority of fire related incidents are expected to start at the battery cell level. An internal cell failure leads to thermal runaway. Occurrence is statistically very unlikely, ppm level, but when an incident occurs there is considerable consequence. Prevention is a difficult task, as was discussed above.

Fire from one cell may propagate to adjacent cells within a battery module. This depends on many factors including cell type and venting action (torch like vent of a cylindrical cell versus fire ball burst from a pouch type cell). For prevention of propagation, cell vent orientation is very important. When venting directly into an adjacent cell, fire propagation is likely.

Fire propagation from one battery to an adjacent battery module within the full battery pack are mainly pack construction related. Spacing and insulation can play a significant role.

When propagation extends from module to module, the next line of defence is pack enclosure. Materials of construction and pack placement (physical location) will play a role in limiting collateral damage.

Fire suppression is applicable at each stage. The earlier the fire is detected, the better the chance of extinguishing it. Once the full pack is burning, the best hope is to limit the extent of damage.

Suggestions for Communication and Distribution of the Report:

Posting on Intertek's website under energy-storage.

Giving webinars

Presentations to stakeholders.

Stakeholder sponsored presentation tour across select UK cities.

Presentation at select industry conferences.

## PROJECT PLAN AND TIMESCALES

Intertek proposes the following project plan. See PROJ1.1-Approach for details of each phase.

Week 51-1: Discovery phase

Week 2: Project Kick Off Meeting (meeting)

Week 2-8: Data collecting/compilation phase

Week 9-11: Analysing phase

Week 11-12: Documentation of draft findings

Week 12: Submission of draft PowerPoint pack to be used at the Stakeholder meeting (deliverable)

Week 13: Stakeholder Discussion Meeting (meeting)

Week 13-14: Reviewing phase

Week 14-15: Preparation of draft final report

Week 15: Submission of draft final report (deliverable)

Week 18-19: Review of comments from BEIS

Week 19: Submission of final report (deliverable)

Week 21: Final Presentation of findings at BEIS London office (deliverable)

## Deliverables

Short mid-monthly email progress reports will be supplied, which will succinctly summarise recent and imminent work activity, and flag up any problems that might lead to delay.

A monthly progress report will be submitted, that will form the basis of a monthly project meeting, by phone, with the Project Manager at BEIS.

A draft PowerPoint pack to be used at the Stakeholder meeting will be submitted to the BEIS project Manager one week before the meeting.

A draft final report will be submitted to the BEIS Project Monitoring Officer for review.

A final report of publishable quality, where comments received from BEIS on the draft final report has taken into account, will be submitted to BEIS

Deliver a final presentation about the project to BEIS staff at their London office.

## Meetings

Weekly internal Intertek project meetings for discussing the progress of the project.

Monthly project meeting, by phone, with the Project Manager at BEIS.

Formal Kick Off meeting at BEIS London office.

Stakeholder meeting to check assumptions and reactions to draft project findings.

Final presentation of findings at BEIS London office

To ensure that project progresses in alignment with the plan, the Intertek project leader and the involved expertise at Intertek will have a weekly project meeting where the progress of the project is discussed, and activities are assigned. At each weekly meeting, risks that can affect the project is listed. Risks that can be influenced by Intertek are taken care of and a person is assigned to handle the risk. The consequences of risks that cannot be influenced by Intertek are analysed and reported to BEIS in the next coming progress reports.

## - Annex A – GDPR



Annex A - Final.pdf