



Department for  
Business, Energy  
& Industrial Strategy

Net Zero Innovation Portfolio

# Interoperable Demand Side Response Programme

Stream 2: Interoperable demand side  
response via the GB smart metering system

COMPETITION GUIDANCE NOTES

May 2022

NOT FOR PUBLICATION



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# Contents

Contents	3
Glossary of terms and definitions	5
Supporting Documents	8
Interoperable Demand Side Response Programme – Guidance for Applicants	9
1. Competition Overview	9
1.1 Background	9
1.2 Competition Context	9
1.3 Competition Aims, Objectives and Scope	11
1.4 Delivery Approach	14
1.5 Competition Requirements	17
1.6 Phase Progression	27
2. Competition Deliverables	28
3. Competition Timetable, Application and Assessment Process	32
3.1 Competition Timetable	32
3.2 Application	33
3.3 Assessment	36
3.4 Grant Award	37
3.5 Acceleration Support	38
4. Funding Levels and Aid Requirements	40
4.1 Competition budget and availability	40
4.2 Grant intensity guidelines	41
4.3 Further public funding	43
4.4 General Subsidy Control requirements	43
4.5 Collaboration and Knowledge Dissemination	44
4.6 Eligible Costs	44
4.7 Ownership, Maintenance and Decommissioning Costs	45
5. Eligibility for Funding	46
5.1 Competition Eligibility Criteria	46
5.2 General BEIS Conditions	49
6. Assessment Process and Criteria	51

## INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

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6.1 Assessment Criteria	51
6.2 Scoring Guidance	57
6.3 Selection Approach	58
7. Reporting	59
7.1 Project monitoring and reporting	59
7.2 Benefits realisation and management	59
7.3 Key Performance Indicators	61
7.4 Reporting requirements	64
7.5 Evaluation requirements	65
8. Project plans and finances	66
8.1 Project Plans and Finances	66
8.2 Financial viability checks	67
9. Notifications and Publication of Results	71
9.1 Notification	71
9.2 Publication of results	71
10. Intellectual Property Requirements	73
11. Feedback, re-application and right of appeal	74
12. Confidentiality and Freedom of Information	75
13. Terms and Conditions	77
14. Further Instructions to Bidders	78
14.1 Application checklist	78
14.2 Data Protection and Security	79
14.3 Non-Collusion	79
Appendix 1 – Technology Readiness Levels (TRLs)	81
Appendix 2 - Exclusion Grounds	86
Appendix 3 – Example Benefits Plan	94
Appendix 4 – Completion of Cost Breakdown Form - Grant	96

# Glossary of terms and definitions

Applicant(s)	Used to refer to entities applying for Grant funding under this IDSR Stream 2 Competition
BEIS	Department for Business, Energy and Industrial Strategy
CEM	Customer Energy Manager <sup>1</sup>
CPA	Commercial Product Assurance
Competition	Used to refer to this IDSR Stream 2 Grant Competition
DNO	Distribution Network Operator
DSR	Demand Side Response
DSRSP	Demand Side Response Service Provider <small>Error! Bookmark not defined.</small>
EIP	Energy Innovation Programme
EMS	Energy Management System – used to mean domestic HEMS (home energy management system) and smaller non-domestic settings EMS
ESA	Energy Smart Appliance
EU	European Union
EV	Electric Vehicle
FAQs	frequently asked questions
FOIA	Freedom of Information Act (2000)
GB	Great Britain
GDPR	General Data Protection Regulations
HEMS	Home Energy Management System
HM	Her Majesty's

<sup>1</sup>Please refer to the PAS 1878 for full description. <https://www.bsigroup.com/en-GB/about-bsti/uk-national-standards-body/about-standards/Innovation/energy-smart-appliances-programme/pas-1878/>

HMG	Her Majesty's Government
HMRC	Her Majesty's Revenue & Customs
HVAC	Heating, ventilation, and air conditioning
IDSR	Interoperable Demand Side Response
IP	Intellectual Property
IPR	Intellectual property rights
KPI	Key Performance Indicator
Independent Laboratory Testing Partner	The delivery partner who will be appointed by BEIS to design and deliver the laboratory testing of DSR systems (Phase 2)
LV	Low Voltage
M	Million
NZIP	Net Zero Innovation Portfolio
OpenADR	Open Automated Demand Response
PAS	Publicly Available Specification
Project(s)	Used to refer to successful Applicants under the IDSR Stream 2 Grant Competition.
Independent Real World Demonstrator Partner	The delivery partner who will be appointed by BEIS to design and deliver the demonstration of DSR systems in a setting indicative of the real world (Phase 3)
SME	Small and medium enterprise
SMHAN	Smart Meter Home Area Network
SMWAN	Smart Meter Wide Area Network
T&C	Terms and Conditions
TCA	Trade and Cooperation Agreement
TOUT	Time-of-use tariff
TRL	Technology Readiness Level

UK	United Kingdom
UKRI	United Kingdom Research and Innovation
VAT	Value-Added Tax
WTO	World Trade Organisation

Please note that references to the "Department" throughout these documents mean The Secretary of State for Business, Energy and Industrial Strategy acting through his/her representatives in the Department for Business, Energy and Industrial Strategy (BEIS).

Any reference to "Programme" is a reference to the Net Zero Innovation Portfolio: Interoperable Demand Side Response (IDSR) Programme, run by the Department for Business, Energy and Industrial Strategy (BEIS).

Any reference to "Portfolio" is a reference to the [Net Zero Innovation Portfolio](#) (NZIP)<sup>2</sup>.

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<sup>2</sup><https://www.gov.uk/government/collections/net-zero-innovation-portfolio>

# Supporting Documents

The following documents support this Competition Guidance and are available within the application form.

- Annex 1: Grant Funding Agreement
- Annex 2: Declarations
  - Declaration 1: Statement of non-collusion
  - Declaration 2: Form of Bid
  - Declaration 3: Conflict of Interest
  - Declaration 4: Code of Practice for Research
  - Declaration 5: The UK General Data Protection Regulation Assurance Questionnaire for Contractors
  - Declaration 6: Modern Slavery Statement
- Annex 3: Project cost breakdown form-Grant
- Annex 4: Laboratory testing and demonstration of interoperable DSR applications in settings indicative of the real world invitation to tender (ITT)



# Interoperable Demand Side Response Programme – Guidance for Applicants

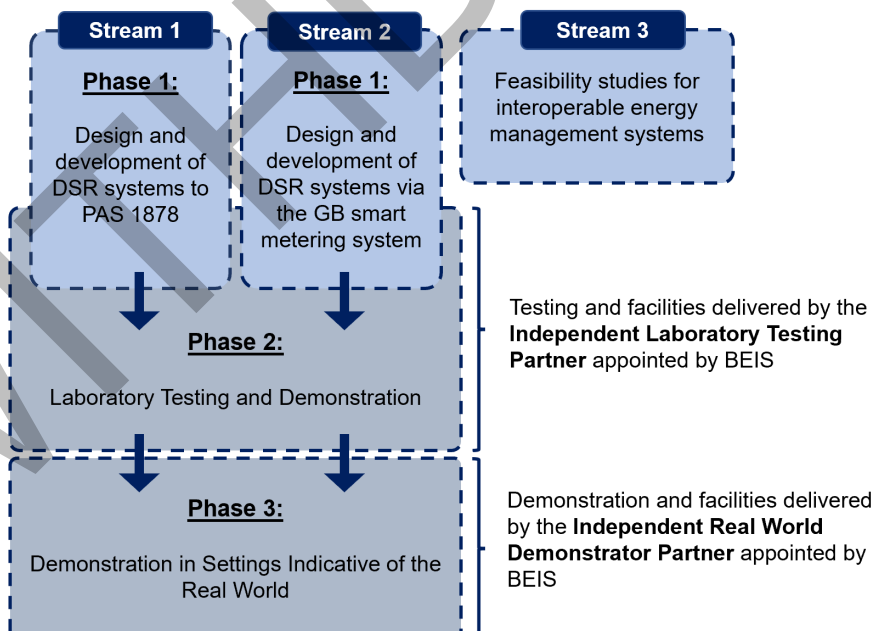
The purpose of this Guidance is to give a comprehensive overview of the Interoperable Demand Side Response (IDSR) Stream 2 Grant Competition (the Competition) and associated procedures for participation in the Competition. For Competition guidance on other Streams, please visit the [Competition website](#).

## 1. Competition Overview

### 1.1 Background

This Competition forms Stream 2 of the Interoperable Demand-Side Response programme. A maximum of **£4.5 million** will be available for the Competition, with a maximum expected grant value of **£1.5 million** per Project. The IDSR programme consists of three streams of work, to support the innovation, design, and demonstration of interoperable demand side response (DSR) systems.

**Figure 1.1: Schematic overview of the Interoperable Demand Side Response Programme**



Please note that the procurement for the independent laboratory testing partner and independent real world demonstration partner has now closed. For more information about the requirements, please refer to the Flexibility Innovation Programme: Laboratory testing and demonstration of interoperable DSR applications in settings indicative of the real world Invitation to Tender, which is provided in **Annex 4** of these competition guidance documents.

## 1.2 Competition Context

As electricity demand rises due to the electrification of transport, heat and industrial processes, flexibility from consumers will become increasingly important.

The '[Transitioning to a net zero energy system - Smart Systems and Flexibility Plan 2021](#)'<sup>3</sup> set out a suite of policies to enable flexibility from consumers, known as “demand side response”. Consumers will need access to “energy smart” appliances that make it easier to change their consumption patterns, alongside tariffs and services that incentivise this change.

As part of this, the government has committed to taking powers to set regulatory requirements for “energy smart” appliances, guided by the core principles of interoperability, data privacy, cyber security and grid stability, herein the ‘core principles’.

The government also commissioned the British Standards Institute (BSI) to develop two standards (PAS 1878<sup>4</sup> and 1879<sup>5</sup>) with industry. These standards were published last year and set out a technical framework for small-scale DSR, guided by the same core principles, and compatible with the GB Smart Metering system.

As stated in the Smart Systems and Flexibility Plan 2021, the government is aiming to consult later this year on an appropriate regulatory approach for flexibility service providers and other organisations controlling load.

The descriptions for the core principles referred to throughout this document are based on descriptions outlined in the PAS 1878 and 1879 and can be found below. Further information can be found in the government’s consultation on standards for energy smart appliances<sup>6</sup> and PAS 1878 and 1879.

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<sup>3</sup><https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021>

<sup>4</sup><https://www.bsigroup.com/en-GB/about-bsi/uk-national-standards-body/about-standards/Innovation/energy-smart-appliances-programme/pas-1878/>

<sup>5</sup><https://www.bsigroup.com/en-GB/about-bsi/uk-national-standards-body/about-standards/Innovation/energy-smart-appliances-programme/pas-1879/>

<sup>6</sup><https://www.gov.uk/government/consultations/proposals-regarding-setting-standards-for-smart-appliances>

**Table 1.1: Description of the core principles**

Principle	Description <sup>7</sup>
Interoperability	The ability of an energy smart appliance (ESA) to be operated by any authorised DSR Service Provider for DSR services.
Data privacy	The secure transmission and storage of data on the device or with any controlling party.
Grid-stability	The prevention and mitigation of negative impacts to the energy system caused by inappropriate operation of ESAs.
Cyber-security	The appropriate protection of an ESA, systems and data from unauthorised access, to reduce the risk of cyber attack

This programme is part of the up to £65 million overarching [Flexibility Innovation Programme](#) which seeks to enable large-scale widespread electricity system flexibility through smart, flexible, secure, and accessible technologies and markets. The Flexibility Innovation Programme will fund innovation across a range of key smart energy applications and sits within the £1 billion NZIP.

## 1.3 Competition Aims, Objectives and Scope

### 1.3.1 Competition Aims

The aim of the Competition is to design and develop ESAs and demand side response service provider (DSRSP) platforms using the Standalone Auxiliary Proportional Controller (SAPC) and OpenADR, in line with and building on relevant parts of PAS 1878<sup>8</sup>.

These frameworks will be applied as a means to satisfy the core principles set out in ‘Transitioning to a net zero energy system - Smart Systems and Flexibility Plan 2021’. Through these frameworks, we will look to test the core principles, including the ability for project DSRSPs and ESAs to demonstrate interoperability (the ability for different and DSRSPs to work with the same ESA), in Phases 2 & 3 of this competition.

### 1.3.2 Competition Objectives

Projects are expected to contribute to achieving the following objectives of the Competition:

<sup>7</sup>Please refer to PAS 1879 standards for details on the functionalities that support the four core principles.

<sup>8</sup>PAS 1878 Annex D is a starting point, this Project seeks to build on this by using OpenADR and PAS 1878 Annex F in addition.

- Design and develop ESAs and DSRSP platforms to provide DSR using SAPC and OpenADR functionality via the GB smart metering system<sup>9</sup> (building on Annex D and Annex F in PAS 1878).
- Provide GB Smart Metering and SAPC enabled ESAs and DSRSP platforms for testing and demonstration in Phases 2 and 3 of the Competition.
- Provide technical support for laboratory testing (Phase 2) and demonstration in settings indicative of the real world<sup>10</sup> (Phase 3), to be delivered by independent delivery partner(s) appointed by BEIS for the IDSR programme.
- Provide recommendations on how existing smart metering specifications could be updated in future iterations.

### 1.3.3 Competition Scope

The Competition will focus on low voltage (LV) connected loads, used in domestic and small non-domestic settings.

The four categories of ESAs for the IDSR programme are:

- Smart electric vehicle (EV) charge points, including V2X devices
- Battery storage
- Electric heating, ventilation, and air conditioning (HVAC), including heat pumps, storage heaters and heat batteries
- White goods<sup>11</sup>

The ESAs must be based on existing hardware whose software is adapted to make the appliance smart and capable of DSR through the relevant specifications. ESAs must be:

- minimum TRL 7 for hardware at the time of application
- minimum TRL 4 for software at the time of application

A description of Technology Readiness Levels is provided in **Appendix 1**.

### Out of Scope

Funding will not be provided for

- Projects considering ESAs for non-domestic systems connected at medium to high voltage (>1000V)

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<sup>9</sup><https://smartenergycodecompany.co.uk/the-smart-energy-code-2/>

<sup>10</sup>Demonstration settings will be indicative of real world premises but will not necessarily be actual consumer homes. For example, the premises could be actual buildings, actual consumer homes or could be dedicated mock-up areas in a laboratory. These settings will be defined by the independent Real World Demonstrator Partner.

<sup>11</sup>White goods in this guidance refers to cold and wet appliances such as refrigerators, freezers, washing machines, tumble dryers, and dish washers.

- Projects developing Energy Management Systems (EMS) in accordance with the GB smart metering system and SAPC. Please refer to Stream 3 of the IDSR programme for further details on interoperable EMS.
- Projects considering designing ESAs or DSRSP platforms not according to the GB smart metering system in accordance with the SAPC requirements relevant to the project. Refer to Stream 1 competition guidance for control of ESA as specified in PAS 1878 and 1879.

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## 1.4 Delivery Approach

The Competition will provide support for approximately 3 Projects to design and develop ESAs and DSRSP platforms using SAPC and OpenADR via the GB smart metering system.

Projects are expected to be delivered through a consortium approach consisting of:

- A DSRSP
- One or more ESA manufacturer(s)
- A SAPC manufacturer (can be the same as the ESA manufacturer)

It is preferred that projects have a DSRSP as a partner, but an acceptable alternative is a systems developer that can develop back-end control systems for later use to a DSRSP to provide a DSR service.

This Competition will be delivered over three phases. The bulk of activity in this Competition will take place in Phase 1. Phases 2 and 3 will be delivered by an independent delivery partner(s) appointed for the programme. Projects will be required to provide technical support to the independent delivery partner(s) during Phases 2 and 3. Please refer to **Section 1.5** for further details.

BEIS anticipates supporting Projects via provision of a process for clarifications and/or issue resolution. As part of this process, BEIS will share relevant assumptions or clarifications raised through this process with all successful projects.

Timescales for each phase are indicative and are intended to be windows of time where Projects will participate in outlined activities. Projects are not necessarily all bound by the same timescales within each Phase. Projects that successfully meet entry criteria (see **Sections 1.6**) may be able to progress through phases at a faster pace within the boundaries of the programme.

**Table 1.2: Competition Phases**

<p><b>Phase 1 – Design and Development</b></p> <p><b>Anticipated Timescale – October 2022 – October 2023 (12 months)</b></p>
<p>Phase 1 of this Competition will focus on the design, development, and initial testing of SAPC, ESAs and DSRSP platforms and is expected to be completed in the first 12 months of the programme.</p>
<p><b>Phase 2 – Laboratory Testing and Demonstration</b></p> <p><b>Anticipated Timescales – June 2023 – March 2024 (6-9 months)</b></p>
<p>Phase 2 of this Competition will focus on the testing and demonstration of the DSR systems designed and developed in Phase 1, within a laboratory setting.</p> <p>This will include:</p> <ul style="list-style-type: none"> <li>• Conformance testing of their solution, making sure that each SAPC/ESA/DSRSP platform meets its specification (or the subset of the specification relevant to the Project). Conformance testing in this context refers to the testing of the products against the relevant technical specifications. The methodology for conformance testing will depend on the product and should be set out by the projects.</li> <li>• Performance testing to specified programme use cases and to the four core principles. Performance testing in this context will measure the output of the products under each of the programme use cases. The methodology for this will be designed and developed by the Independent Laboratory Testing Partner. We anticipate that this will include the testing of DSRSPs and ESAs between projects to test the core principle of interoperability.</li> </ul> <p><b>Note: Performance testing under Phase 2 will be delivered and coordinated centrally by the Independent Laboratory Testing Partner appointed for the programme. Projects will be required to provide technical support during these Phases.</b></p>

### Phase 3 – Demonstrations in settings indicative of the real world

#### Anticipated Timescales – April 2024 – October 2024 (6 months)

Phase 3 of this Competition will focus on the demonstration of the DSR systems designed and developed in Phases 1 and 2 in settings indicative of the real world.

**Demonstration activities under Phase 3 will be delivered and coordinated centrally by the Independent Real World Demonstrator Partner appointed for the programme. Projects will be required to provide technical support during these Phases.**

It is anticipated that Projects from Stream 2 will be demonstrated in up to 5 demonstration units. The design of the testing scheme will be developed by the Independent Real World Demonstrator Partner. This is expected to include demonstration systems that are indicative of real-world premises but that do not necessarily require actual consumer homes. For example, the premises could be actual buildings, actual consumer homes or could be dedicated mock-up areas in a laboratory.

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## 1.5 Competition Requirements

All ESAs and DSRSP platforms must be designed using OpenADR via the GB smart metering system as detailed below. Projects are required to meet the following:

### 1.5.1 Phase 1 – Design and Development

Ref	Sub-Category	Requirement
DD-01	GB smart metering compliant ESAs and DSRSPs	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>• Design and develop GB smart metering compliant ESAs meeting the requirements specified in the SAPC specification (relevant to the Project) and other relevant regulation. Other functionalities of the products can be 'self-certified' against the SAPC specifications to evidence they have been met. The ESAs must be based on existing hardware whose software is adapted to make the appliance smart and capable of DSR through the relevant specifications (see <b>Section 1.3</b> for further details on TRLs)</li> <li>• In terms of PAS 1878 requirements, as a minimum, OpenADR is required (building on Annex D and Annex F). These messages can be “encapsulated” in existing SAPC messages (for example, DCC service requests to set the descriptor/label for the SAPC could be used to carry OpenADR message structures) and sent via the SMWAN/SMHAN or via the internet. Both communication routes should be demonstrated by each Project (using the same encapsulated OpenADR SAPC messages). BEIS will work across projects to ensure an interoperable solution with respect to these encapsulated OpenADR messages.</li> </ul> <p><b>Note: The ZigBee elements of SAPC should be independently certified in line with the existing conformance testing schemes, using a suitably accredited facility. This can be delivered during Phase 2.</b></p>

## INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<ul style="list-style-type: none"> <li>Initiate certification process against the CPA scheme<sup>12,13,14</sup>.</li> <li>Provide suggestions as to how the ESA/DSRSP platforms can interact successfully with Energy Management Systems (EMS). This should include details of what information exchanges will be required for interaction with their ESA, and how the ESA and EMS can be coordinated to respond to a DSR request under the GB smart metering framework. This should take into account that encapsulated OpenADR SAPC messages can be sent via two communication routes, as set out above.</li> </ul>										
DD-02	Demonstration against programme use cases	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>Demonstrate ESAs and DSRSP platforms against programme use cases, through functionality testing. The anticipated use cases for the IDSR programme are based on the following:</li> </ul> <p><b>Table 1.33: Programme Use Cases</b></p> <table border="1"> <thead> <tr> <th>Use Case</th> <th>Event Simulated</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Consumer registering DSR appliance with CEM (where not integrated)</td> </tr> <tr> <td>B</td> <td>Consumer registering with the appointed DSRSP</td> </tr> <tr> <td>C</td> <td>Consumer defining DSR preferences</td> </tr> <tr> <td>D</td> <td>Routine DSR mode of operation based on consumer's preferences and time-of-use tariff (TOUT).</td> </tr> </tbody> </table>	Use Case	Event Simulated	A	Consumer registering DSR appliance with CEM (where not integrated)	B	Consumer registering with the appointed DSRSP	C	Consumer defining DSR preferences	D	Routine DSR mode of operation based on consumer's preferences and time-of-use tariff (TOUT).
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A	Consumer registering DSR appliance with CEM (where not integrated)											
B	Consumer registering with the appointed DSRSP											
C	Consumer defining DSR preferences											
D	Routine DSR mode of operation based on consumer's preferences and time-of-use tariff (TOUT).											

<sup>12</sup>CPA is the security assurance regime for smart metering equipment, including SAPC. For this Project CPA is required as an exit-criteria on the basis that it ensures a market ready product. For the avoidance of doubt, CPA is not required for progression into Phase 2 and Phase 3.

<sup>13</sup><https://www.ncsc.gov.uk/information/commercial-product-assurance-cpa>

<sup>14</sup><https://www.ncsc.gov.uk/information/commercial-product-assurance-cpa-security-characteristics>

INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<table border="1"> <tr> <td>E</td> <td>Sending power profiles from ESA to CEM and to DSRSP</td> </tr> <tr> <td>F</td> <td>Response DSR mode of operation based on authenticated and validated Flexibility offers<sup>15</sup> from DSRSP</td> </tr> <tr> <td>G</td> <td>Consumer over-ride of DSR response mode and routine mode.</td> </tr> <tr> <td>H</td> <td>DSRSP maintaining DSR service delivery despite availability changes</td> </tr> <tr> <td>I</td> <td>Consumer de-registers ESA from CEM (where not integrated) and DSRSP</td> </tr> <tr> <td>J</td> <td>Change of incentive information</td> </tr> <tr> <td>K</td> <td>Consumer changes DSRSP (to be demonstrated in Phases 2 and 3)</td> </tr> </table> <p>Interoperability test specifications and acceptance criteria for each use case will be developed by the Independent Laboratory Testing Partner and agreed with BEIS by the end of Phase 1.</p>	E	Sending power profiles from ESA to CEM and to DSRSP	F	Response DSR mode of operation based on authenticated and validated Flexibility offers <sup>15</sup> from DSRSP	G	Consumer over-ride of DSR response mode and routine mode.	H	DSRSP maintaining DSR service delivery despite availability changes	I	Consumer de-registers ESA from CEM (where not integrated) and DSRSP	J	Change of incentive information	K	Consumer changes DSRSP (to be demonstrated in Phases 2 and 3)
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J	Change of incentive information															
K	Consumer changes DSRSP (to be demonstrated in Phases 2 and 3)															
DD-03	Performance testing schemes	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>Review the draft performance testing schemes produced by the Independent Laboratory Testing Partner. We anticipate this will be made available during the early stages of Phase 1. These should be used to inform Projects' own functionality testing during development. An opportunity to provide feedback on the draft testing schemes will be made available.</li> </ul>														
DD-05	Phase 1 Reporting	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>Attend quarterly Project Progress Meetings – At these meetings Projects will be expected to discuss key points as set out in the most recent Quarterly Report. These are anticipated to be 2-3 hours and be in person and/or virtual (COVID dependent).</li> </ul>														

<sup>15</sup>Flexibility offers for DSR services such as frequency response and network constraint management.

INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<ul style="list-style-type: none"><li>• Participate in monthly Project update meetings with monitoring officers which might involve visits to the Project site.</li></ul> <p>Please refer to <b>Section 7.4</b> for further detail.</p>
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1.5.2 Phase 2 – Laboratory Testing and Demonstration

Ref	Sub-Category	Requirement
LTD-01	Conformance testing of solution	<p><b>Projects are expected to be responsible for:</b></p> <ul style="list-style-type: none"> <li>• Conformance testing of their solution, making sure that each SAPC, ESA and DSRSP platform meets its relevant specification. For example:                             <ul style="list-style-type: none"> <li>○ SAPC meets the subset of the SAPC specification relevant to the project</li> <li>○ DSRSP platforms meets the relevant DSRSP specification</li> <li>○ ESA meets the ESA manufacturer’s specification.</li> </ul> </li> </ul>
LTD-02	Provision of DSR system for laboratory testing and demonstration	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>• Provide at least one (1) of each eligible SAPC, ESA and supporting DSRSP platforms suitable for the laboratory testing and demonstration in Phase 2 as per the requirements of the Independent Laboratory Testing Partner. The ESAs must be based on existing hardware whose software is adapted to make the appliance smart and capable of DSR through the relevant specifications (see <b>Section 1.3</b> for further details on TRLs)</li> </ul>
LTD-03	Laboratory testing and demonstration	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>• Actively collaborate with the Independent Laboratory Testing Partner of the IDSR programme to enable the laboratory testing. This will include:                             <ul style="list-style-type: none"> <li>○ Provision of ad hoc technical and troubleshooting support (including product design improvements, where required for the purpose of compliance and stage-gate approval) to</li> </ul> </li> </ul>

## INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<p>the Independent Laboratory Testing Partner both during the installation and troubleshooting and as required throughout the testing and demonstration process.</p> <p>As part of their budgeting (see <b>Section 6.1</b>, Assessment Criterion 6 and <b>Appendix 4</b>) Projects are asked to allow for 25 person-days for the anticipated support to be provided to the Independent Laboratory Testing Partner at Phase 2.</p> <p><b>Note: Progression of SAPCs, ESAs and DSRSPs through Phase 2 will be managed by the Independent Laboratory Testing Partner appointed by BEIS. Projects are expected to support this transition by rectifying any conformance issues identified by the delivery partner in a timely manner.</b></p> <ul style="list-style-type: none"> <li>• Be agile and flexible in their approach to enable any required troubleshooting and modifications to be completed within anticipated phase timescales. Projects will be expected to respond to the Independent Laboratory Testing Partner with a resolution plan within 5 working days of any technical issue being raised.</li> </ul>
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### 1.5.3 Phase 3 – Demonstrations in settings indicative of the real world

Ref	Sub-Category	Requirement
IRW-01	Provision of DSR system for demonstrations	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>• Provide 5 of each SAPC, ESA and supporting DSRSP platforms at the beginning of Phase 3 which can be deployed in a real-world setting, as designed by the Independent Real World Demonstrator Partner</li> </ul>

## INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

IRW-02	Demonstration in settings indicative of the real world	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"><li>• Actively collaborate with the Independent Real World Demonstrator Partner of the IDSR programme to enable interoperability demonstration. This will include:<ul style="list-style-type: none"><li>○ Provision of ad hoc technical and troubleshooting support (including product design improvements, where required for the purpose of compliance and stage-gate approval) to the Independent Real World Demonstrator Partner both during the installation and troubleshooting and as required throughout the real-world setting demonstrations process<sup>16</sup></li></ul></li></ul> <p>As part of their budgeting (see <b>Section 6.1</b>, Assessment Criterion 6 and <b>Appendix 4</b>) Projects are asked to allow for 25 person-days for the anticipated support to be provided to the Independent Real World Demonstrator Partner at Phase 3.</p> <ul style="list-style-type: none"><li>• Be agile and flexible in their approach to enable any required troubleshooting and modifications to be completed within anticipated phase timescales. Projects will be expected to respond to the Independent Real World Demonstrator Partner with a resolution plan within 5 working days of any technical issue being raised.</li></ul>
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<sup>16</sup>It is important to note that the specific use case testing procedures that the ESAs and DSRSP platforms will be tested against in Phase 2, may be different from those defined by the Stream 2 Projects in Phase 1, as the conformance testing scheme will be under development during Phase 1.

### 1.5.4 Overarching Requirements

Projects will be expected to comply with the following overarching requirements:

Ref	Sub-Category	Requirement
OR-01	Knowledge sharing and dissemination	<p><b>Projects are expected to comply with Knowledge sharing and dissemination requirements across all Phases.</b></p> <p>Effective dissemination and knowledge sharing are key requirements in this Competition, and applicants will be assessed on the scope and scale of their proposed knowledge dissemination and sharing activities.</p> <ul style="list-style-type: none"> <li>• Projects will be expected to support knowledge sharing and programme-level dissemination events.                             <ul style="list-style-type: none"> <li>○ In Phase 1, Projects will be required to contribute to a minimum of one (1) knowledge dissemination activity. Examples include through conferences, publication, open access repositories, or free or open-source software.</li> <li>○ In Phases 2 and 3, Projects will be required to contribute to a minimum of one (1) knowledge dissemination activity. Examples include through conferences, publication, open access repositories, or free or open-source software.</li> </ul> </li> <li>• In addition to this, Projects may be required to present at one or both of the anticipated Flexibility Innovation Programme showcase events. The purpose of these events is for knowledge dissemination and showcasing. These are anticipated to be half a day and be in person and/or virtual (COVID dependent).</li> <li>• Projects may be required to attend one or more workshops alongside the other Projects funded in this Programme. We anticipate this could include sharing and discussing Stream 2 Projects' feedback on the relevant specifications (see associated deliverable in <b>Section 2</b>)</li> </ul>



INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<ul style="list-style-type: none"> <li>The Monitoring Officer assigned by BEIS will monitor the knowledge dissemination of Project teams across all Phases.</li> </ul>
OR-02	Project Monitoring and Reporting	<p><b>Projects are expected to:</b></p> <ul style="list-style-type: none"> <li>Comply with the Project monitoring and reporting requirements as detailed in Section 5 of the Grant Funding Agreement Terms and Conditions (Annex 1 of this document).</li> <li>Support the evaluation of the IDSR programme following the end of their Project, by providing data on NZIP KPIs at regular intervals (see <b>Section 7.3</b>), through a survey, and taking part in interviews on Project delivery and impact. Further information on programme evaluation requirements is set out in <b>Section 7.5</b>.</li> </ul>
OR-03	Collaborative Working with Flexibility Innovation Programme activities and projects	<p>Due to the interlinking nature of the different contracts within the Flexibility Innovation Programme, the successful Applicants shall work collaboratively with other anticipated Flexibility Innovation Programme activities and projects to ensure consistency between work scope. The successful Applicants will be required to:</p> <ul style="list-style-type: none"> <li>take responsibility for this engagement with relevant projects</li> <li>incorporate information from the other projects into this work as these progress</li> <li>work with potential individuals or organisations appointed by BEIS to support the delivery of the Flexibility Innovation Programme</li> <li>work collaboratively to coordinate between the laboratory and real-world demonstration phases, including exchange of necessary data/information to facilitate testing to deliver contract requirements.</li> </ul> <p>Successful Applicants may work closely with organisations appointed to deliver related and anticipated sub-programmes and projects. In some circumstances successful Applicants may be required to sign collaboration agreements covering confidentiality, logistics, responsibilities and intellectual property with such organisations. An example of the detailed collaboration agreement will be shared with the successful</p>

INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

		<p>bidders. Key stakeholders which successful Applicants may be required to enter into a collaboration agreement with may include:</p> <ul style="list-style-type: none"><li>• the Independent Laboratory Testing Partner</li><li>• the Independent Real World Demonstrator Partner</li></ul>
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## 1.6 Phase Progression

### 1.6.1 Project progression from Phase 1 to Phase 2

At the end of Phase 1, Projects will undergo a formal Stage Gate Review for progression into Phase 2. This is captured through the Grant Continuation Letter defined in the Grant Funding Agreement. Only Projects which have completed Phase 1 will be eligible to progress to Phase 2. To complete Phase 1, Projects must:

- Submit all required Phase 1 deliverables (See **Section 2**) and have complied with their Phase 1 monitoring and reporting obligations.
- Demonstrate they can deliver required products and support for the Phase 2 laboratory testing in line with the Independent Laboratory Testing Partner's schedule.

### 1.6.2 Project progression from Phase 2 to Phase 3

At the end of Phase 2, Projects will undergo a formal Stage Gate Review for progression into Phase 3. This is captured through the Second Grant Continuation Letter defined in the Grant Funding Agreement. Only Projects which have completed Phase 2 will be eligible to progress to Phase 3. To complete Phase 2, Projects must:

- Submit all required Phase 2 deliverables (see **Section 2**) and have complied with their Phase 2 monitoring and reporting obligations.
- Demonstrate they can deliver up to 5 of each SAPC, ESA and the DSRSP platform(s) to support these, as well as technical support for the Phase 3 demonstrator in line with the Independent Real World Demonstrator Partner's schedule.

In addition, Project eligibility for Phase 3 will be based on:

- Evidence from the Independent Laboratory Testing Partner that:
  - ESAs are compliant with the SAPC requirements relevant to the Project and all other relevant standards for such devices.
  - ESAs and DSRSP platforms are working in an interoperable manner under the IDSR Programme use cases

During Phase progression, BEIS reserves the right to approve which ESAs will proceed for testing and demonstration in Phases 2 and 3 of the IDSR programme. This approval will be conducted following BEIS' Stage Gate assessment

## 2. Competition Deliverables

This section sets out the formal Deliverables<sup>17</sup> required as part of the Project to meet the objectives of this Competition.

Projects should reflect in these Deliverables the lessons learned during design and development. In addition, they should describe how they addressed the risks, challenges and uncertainties associated with their technologies.

If any aspects of the Deliverables are agreed to be commercially confidential, then Projects will be required to provide a version of the Deliverable that can be published. Potential omissions on the basis of commercial reasons should be discussed with BEIS at the earliest opportunity, post grant award.

BEIS will appoint a Monitoring Officer (one assigned to each Project) to monitor the delivery of the Deliverables and confirm receipt to agreed timetable and meeting relevant quality and content requirements. Projects will need to include sufficient time for the approval process to enable delivery of Deliverables.

Projects will be expected to produce a number of deliverables during the three Phases as outlined below:

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<sup>17</sup>For the avoidance of doubt these formal Project-specific Deliverables are to be delivered alongside standard BEIS Reporting requirements as set out at Section 7.4

**Table 2.1: Competition Deliverables**

Phase	Required Content
Phase 1	<ul style="list-style-type: none"> <li>• Detailed report on how ESAs will interact with an EMS while implementing the GB smart metering SAPC requirements relevant to the project, using OpenADR. This must also include details of what information exchanges will be required for interaction with their ESAs, and how the ESAs and EMS can be coordinated to respond to a DSR request under the GB Smart Metering framework. This should take into account the two different communications routes. <b>This report (to be delivered by Month 3) will be made available to projects delivering Stream 3 of the IDSR programme to consider as part of their work.</b></li> <li>• Detail of proposed functionality of ESAs and DSRSP platform including a specification for how OpenADR messages can be encapsulated into existing SAPC messages, as well as any common OpenADR options across Projects (to be agreed between Projects and BEIS)</li> <li>• A software simulator/demonstrator showing how the encapsulated OpenADR messages work on an end-to-end basis (for example, from DSRSP to SAPC/ESA and vice versa)</li> <li>• Report on the methodology for the design of ESAs and DSRSP platforms (both hardware and software) in accordance with:             <ul style="list-style-type: none"> <li>○ The requirements of GB smart metering SAPC requirements relevant to the Project,</li> <li>○ other over-arching relevant regulation (for example, product safety, radio equipment)</li> <li>○ the core principles of interoperability, data privacy, grid stability and cyber security.</li> </ul> </li> </ul> <p>In particular, details of how the requirements of using encapsulated OpenADR SAPC messages sent via the SMWAN/SMHAN, and the internet communications routes are being met. The ESAs must be based on existing hardware whose software is adapted to make the appliance smart and capable of DSR through the relevant specifications (see <b>Section 1.3</b> for further details on TRLs)</p> <ul style="list-style-type: none"> <li>• The onward development plan for the systems under development</li> </ul>

## INTEROPERABLE DEMAND SIDE RESPONSE – Stream 2

- Evidence of ESAs and DSRSP platforms being built (both hardware and software) in accordance with the relevant requirements of the GB smart metering SAPC Specification using encapsulated OpenADR SAPC messages sent via the SMWAN/SMHAN and the internet. This evidence may be verified by the Project Monitoring Officer via occasional site visits, as appropriate.
- A test plan for functionality testing<sup>18</sup> (including details of how use cases will be tested) to be carried out during Phase 1
- A test plan for conformance testing and external certification to be carried out before the end of Phase 2, taking the two different communications routes into account
- Report on functionality tests to show how GB smart metering SAPC requirements relevant to the Project are met by the designed SAPCs, ESAs and DSRSP platforms (using encapsulated OpenADR SAPC messages sent via the SMWAN/SMHAN and the internet).
- Demonstration and evidence of ESAs and DSRSP platforms delivering programme use cases (see **Section 1.5**), through functionality testing. This should outline the procedures for testing the use cases and the technical performance of each of the different technologies during the demonstration of the use-cases.
- Evidence of certification/conformance under other over-arching relevant regulations (for example, product safety, radio equipment).
- The detailed design and technical specification of ESAs and DSRSP platforms.
- A plan for provision of ESA devices and DSRSP platforms suitable for the laboratory testing and demonstration in Phases 2 and 3, as per the requirements of the relevant independent delivery partner(s).
- Feedback report on relevant specifications from the developers, based on any technical issues arising through Phase 1, providing evidence for any updates. In particular any changes to the GB smart metering system that would have been helpful had they been in place from the outset of the Project (for the avoidance of doubt, such changes will not be made as part of this Project)
- Demonstration and evidence of initiation of CPA certification process.

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<sup>18</sup>Functionality testing in this context is considered to be observation of the outputs of the device when provided with routine inputs, in particular inputs which may occur during implementation of the use cases. Its purpose is to check whether the product is capable of carrying out its basic functions with respect to DSR.

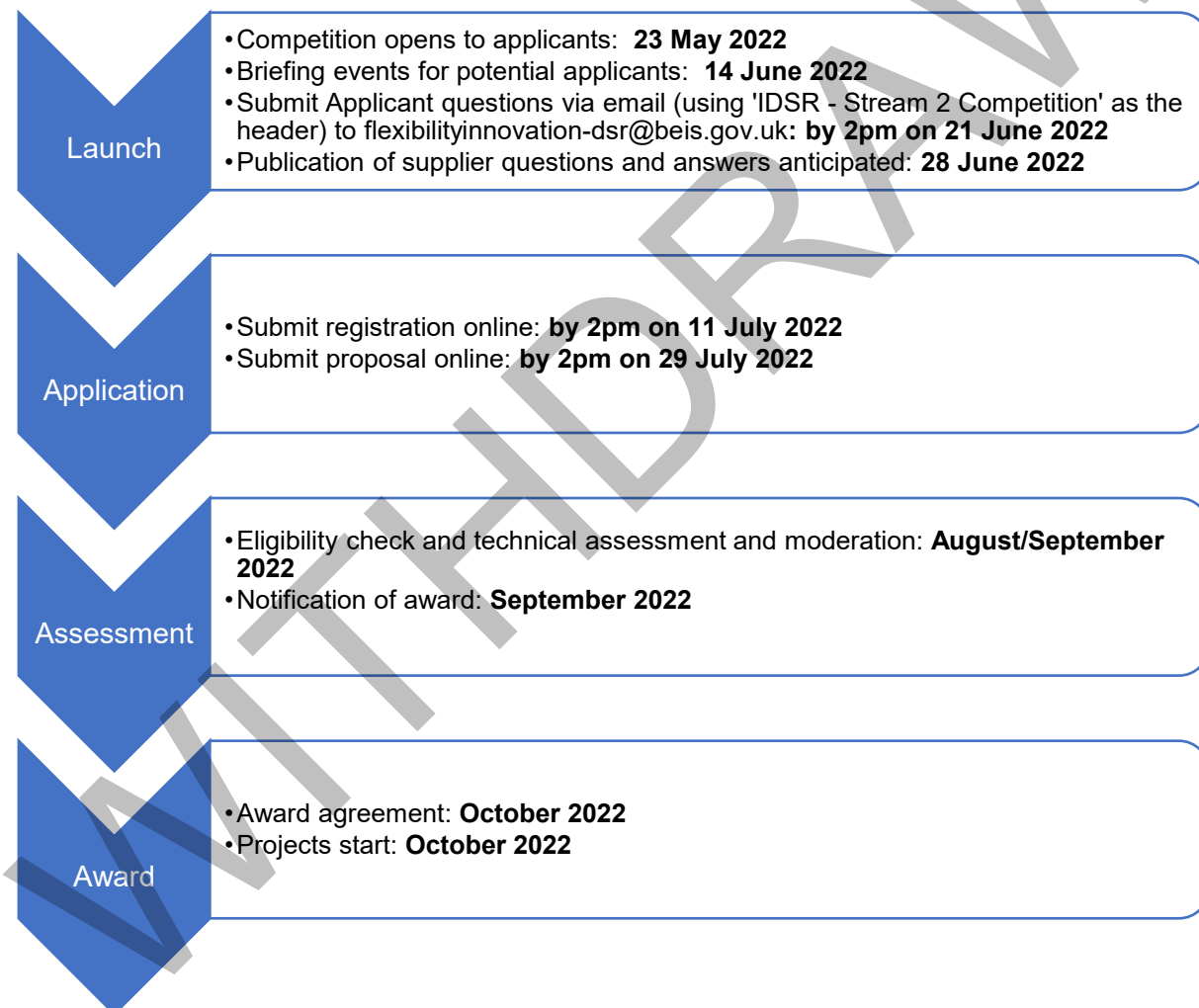
Phase 2	<ul style="list-style-type: none"> <li>• Results on conformance tests to show how GB smart metering SAPC requirements relevant to the Project are met by the designed ESAs and DSRSP platforms. This will be assured by the Independent Laboratory Testing Partner undertaking performance testing, appointed by BEIS.</li> <li>• Log outlining details of the technical support provided, including issues raised, resolution time, resolution process and final status</li> <li>• Feedback report on relevant specifications from the developers, based on any technical issues arising through Phase 2, providing evidence for any updates</li> <li>• Demonstration and evidence of progression towards CPA certification.</li> </ul>
Phase 3	<ul style="list-style-type: none"> <li>• Log outlining details of the technical support provided, including issues raised, resolution time, resolution process and final status</li> <li>• Feedback report on relevant specifications from the developers, based on any technical issues arising through Phase 3, providing evidence for any updates</li> <li>• Demonstration and evidence of completed CPA certification</li> </ul>

# 3. Competition Timetable, Application and Assessment Process

## 3.1 Competition Timetable

Successful projects are expected to run from October 2022 to October 2024. Indicative key dates applicable to the competition are shown in Figure 3.1. Please note BEIS reserves the right to vary these dates.

**Figure 3.1: Competition Timetable**





## 3.2 Application

The application process is as follows:

### Stage 1 – Accessing application documentation

- Applicants will be asked to complete an [online Registration Form](#), following which a unique password will be generated. This will be required to access and complete the online Competition application form. Applicants are encouraged to submit Registration forms by **2pm on 11 July 2022**
- Within a week of receipt of the Registration Form, BEIS will issue a confirmation email to the applicant, with a password to log into the online application system and submit a subsequent application.
- Potential Applicants can also find further information at a programme wide information event, which will take place on **14 June 2022**. Documentation from the event will be published on the [Competition website](#).

### Stage 2 – Completion of online application including clarification stage

- On receipt of the unique password, Applicants can then complete the online application form and submit supporting information outlining their proposal.
- To inform their application, Applicants are able to submit clarification questions to [flexibilityinnovation-dsr@beis.gov.uk](mailto:flexibilityinnovation-dsr@beis.gov.uk). Applicants should state in the email header that the clarification question(s) relate to the 'IDSR Stream 2 Competition'. The deadline for submitting clarification questions **2pm on 21 June 2022. Questions submitted after this deadline may not be answered.**
- BEIS will publish replies to any questions which, in our judgement, are of material significance through an online anonymised FAQ sheet on or before **28 June 2022**. All Applicants should consider the answers to the clarification questions and this Competition Guidance when preparing their own bids. BEIS will evaluate bids on the assumption that they have done so.
- Applicants should ensure they have read this Competition Guidance document before starting to complete the application form.
- Applicants can save their application at any time by selecting "Save and Continue Later." You will then be emailed a link which you can use to return to your application and complete it, logging in with the same password.
- Any queries with the online application should be emailed to [flexibilityinnovation-dsr@beis.gov.uk](mailto:flexibilityinnovation-dsr@beis.gov.uk). Applicants should state in the email header that the clarification question(s) relate to the '**IDSR Stream 2 Competition**'.
- You may also find it useful to review the offline application form. This is a Word document copy of the questions that will be asked of you in the online application form, which you can use to view the sequence of all the questions and to plan your time

allocation for submitting your application. **It is for reference only and you should not complete the Word document to submit your application.** All applications will need to be completed and submitted through the online platform.

- Alongside the offline application form, you will find offline examples of the forms and declarations you need to complete and return with your application (see Submission Content below). These examples are also for reference only. In your online application, you will be provided with links to download these forms and declarations. You then need to sign them (please note you cannot do this directly in the application platform) and re-upload them to your application.

### Stage 3 – Submission of Proposal

- The full proposal including uploads of all required supporting documents (see 'Submission Content' bullet below) must be submitted online by **2pm on 29 July 2022**. Please note that each supporting document cannot exceed the size limit as set out within the application form.
- Any applications or supporting documentation received after the application deadline will not be considered.
- Submission Content. Each proposal must include the following:
  - Completed application form (online) including responses to relevant Assessment Criteria as set out in **Section 6** of this document.
  - The following signed declaration forms. Applicants must download through the online application form, sign, and re-upload to their application:
    - Declaration 1: Statement of non-collusion
    - Declaration 2: Form of Bid – agreeing to the terms of the Competition application process
    - Declaration 3: Conflict of Interest
    - Declaration 4: Code of Practice for Research
    - Declaration 5: The UK General Data Protection Regulation (GDPR) Assurance Questionnaire for Contractors
    - Declaration 6: Modern Slavery Statement
  - Completed Cost Breakdown Form - Grant, **[downloadable through the online application form; Applicants must sign and re-upload to their application]**.
  - Completed Project plan, for example, detailed Project Gantt chart and description of work packages, **[to be attached by applicant to their online application]**.
  - Completed Additional Partner Information Form, if you have more than 3 partners to your proposal<sup>19</sup>

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<sup>19</sup>In the online application form, you can list the details of up to 3 Project partners for your application. If you have more than 3 Project partners, you must complete the Additional Partner Information Form, an Excel spreadsheet where you can list the details of your additional partners (partners 4, 5 and so on)

- Complete audited financial accounts covering the past 3 years of activity – or equivalent financial data as set out at **Section 8.2** - and/or letters of support from Project partners. Where a new start-up is applying, they should provide a statement explaining how they will finance the Project.
- You should answer all questions on the application form in full. Incomplete applications will likely be rejected, although BEIS may, at its discretion, request clarification or additional data before making a final decision.
- **Submission Costs:** You will not be entitled to claim from BEIS any costs or expenses that you incur in preparing your bid, whether or not your proposal is successful.
- **Consortium Bids:** Bids may be submitted by Project teams (consortia). Only one application should be submitted for each bid, but all consortium partners are required to sign the completed declaration form for their bid (Form of Bid).
- If a consortium is not proposing to form a separate legal entity, the Project partners will need to complete a Consortium Agreement and funding will not be released by BEIS until a signed consortium agreement has been finalised between all the members of the Project consortium. A satisfactory consortium agreement must be signed within one (1) month of Grant Funding Agreement signature. Please note that BEIS reserves the right to require a successful consortium to form a single legal entity in accordance with Regulation 19 of the Public Contracts Regulations 2015 (as amended by the Public Procurement (Amendment etc.) (EU Exit) Regulations 2020).
- BEIS recognises that arrangements in relation to consortia and sub-contractors may (within limits) be subject to future change. Applicants should therefore respond in the light of the arrangements as currently envisaged and are reminded that any future proposed changes in relation to the consortium must be submitted to BEIS for approval.
- **Multiple Applications.** Lead applicants may only enter as part of one application each into this Stream 2 competition. In addition, DSRSPs may only enter as part of one application each into this Stream 2 Competition. ESA manufacturers can enter as part of multiple applications as long the category of ESA entered is different per application. Please note, Projects consortium member(s) can also apply into the Stream 1 Competition, if their applications demonstrate clearly how they intend to meet the relevant specifications. Within each application, Applicants will need to clarify areas of duplication for work and associated cost should their application of funding be successful under both Streams. If Project consortium members or subcontractors are part of multiple successful applications, they must be able to deliver on them and they must not have applied for funding for the same piece of work more than once.
- **Information Sharing.** BEIS may share information from applications with other UK government departments, UKRI or with Ofgem for evaluation of the programme against broader decarbonisation efforts.

### 3.3 Assessment

Applications will initially be assessed against the Eligibility Criteria in **Section 5** below. **Applications which fail the Eligibility Criteria will not be assessed further, so it is essential to ensure that your Project meets these criteria before you submit your application. Ineligible applications will receive brief feedback on the reason for their ineligibility.** The assessment process is described in **Section 6**.

WITHDRAWN

## 3.4 Grant Award

The target date for Grant Agreement signature is October 2022. As detailed at **Section 1.6**, These grant agreements will also include a process to reflect the Stage Gate review for progress to Phases 2 and 3.

Please note that BEIS reserves its right to not award any grant agreements under this Competition.

**Grant Agreement terms:** The Grant Agreement will be based on the BEIS Grant Funding Agreement. The terms and conditions for this agreement are provided in Annex 1. By applying to this Competition, you are agreeing to participate under these terms and conditions, which are not open to negotiation.

Whilst no changes to the Grant Agreement are permitted, prior to the issue of the formal grant offer, there will be an opportunity to discuss the grant offer at a meeting with at least one official from BEIS who will explain the conditions of the grant offer and respond to any queries which the applicant may have at this stage. BEIS officials will also discuss any risks raised through the assessment process and finalise the formal Project milestones with the Project team before issue of the formal grant offer.

**Consortium bids:** In the case of Projects which are delivered by several organisations, the lead company (Project co-ordinator) will be the recipient of the grant offer letter and will be responsible for managing payment of grant funding to the other Project partners. Funding will not be provided by BEIS until a Consortium Agreement for the Project has been finalised and signed by all the members of the Project consortium.

Consortium members/subcontractors may be part of multiple bids within the rules set out in **Section 3.2**; however, it is the duty of the lead organisation to manage any arrangements with regards to conflicts of interest with subcontractors/consortium members where those subcontractors/consortium members are part of other bids.

Additionally, the lead organisation must ensure that the consortium member/subcontractors have sufficient resources to successfully deliver multiple bids/work packages. The lead organisation must also ensure that funding is not double counted for the same piece of work. Bid evaluation will take into account capacity to deliver multiple proposals simultaneously.

The lead organisation will act as the primary point of contact with BEIS and will be responsible for monitoring and managing delivery of all Requirements and Deliverables as set out at **Section 1.5 and 2**. For the avoidance of doubt this will include active management and resolution of issues arising with the performance of one or more Consortium members or Subcontractors which might adversely impact on delivery of stated Requirements and Deliverables.

### 3.5 Acceleration Support

This section is for information regarding support for SMEs.

This scheme will offer acceleration support to successful applicants that meet the definition of Small & Medium Enterprise (SME) (Table 3.1). This is highly recommended for SME grant awardees to help develop their business. This Acceleration Support is 100% funded by BEIS. This support will focus on helping the applicant to prepare commercial plans and actions that will increase the chance of successfully bringing the innovation to market or reduce the time to market.

**Table 3.1: Categories for business size definitions**

Company Category	Staff Headcount		Turnover		Balance Sheet Total
Medium	<250 people	AND	≤£45m	OR	≤£39m
Small	<50 people	AND	≤£9m	OR	≤£9m
Micro	<10 people	AND	≤£2m	OR	≤£2m

The starting point for acceleration support is to consider the current stage of commercial preparation and identify (with the applicant) critical next steps, business strengths and gaps, benchmarked for the stage of the individual business across all key Acceleration Support focus areas:

Market engagement and proposition

- Strategy and sales
- Team and board
- Funding and investment
- Product-service design, development and launch
- Business processes and controls

Specialist advisers will be assigned by BEIS to support the company in the development of the appropriate knowledge and skills. Three types of support will be available dependant on company need:

- Tailored support, including coaching and specialist support across the six focus areas
- Group training and learning resources, including sector specific masterclasses and techno-market workshops

- Access to industry and finance networks, providing companies with investor engagement opportunities, pitch training sessions, facilitated market engagement and networking opportunities

All SME-led proposals that are awarded funding and wish to receive Acceleration Support will need to participate in an Acceleration Support Planning meeting. This planning session will be conducted by The Carbon Trust who have been appointed to deliver Acceleration Support Services on behalf of BEIS. Following the planning meeting an acceleration plan will be created outlining the task delivery plan. These plans will be bespoke and based on company needs identified.

BEIS have historically offered Acceleration Support to help grant recipients achieve maximum commercial impact from the grant. From the experience of the Energy Entrepreneur's Fund (EEF) scheme managed by BEIS, there is a clear distinction between projects that received Acceleration Support and those companies who were high-scoring applications but did not receive funding and Acceleration Support, through the EEF scheme.

It is highly recommended that grant recipients take up the offer of Acceleration Support Services and co-operate with both the Acceleration Planning Session and the Acceleration Manager, who will oversee the delivery of the acceleration support. However, unlike the EEF scheme, receiving the identified acceleration support is not a condition of the grant award.

Participants will also be asked to collaborate in monitoring and evaluation activities and to provide feedback on support provided through the programme.



## 4. Funding Levels and Aid Requirements

DISCLAIMER: While BEIS will operate within the UK-EU Trade and Co-operation Agreement (TCA) requirements and World Trade Organisation (WTO) rules, we may decide to offer lower levels of funding than the maximum levels indicated in this Guidance; additionally, the funding rules set out in this Guidance Document are specific to this Programme only.

### 4.1 Competition budget and availability

The total budget available for the Competition is up to **£4.5 million**, although BEIS may, at its discretion, choose not to make an award, increase the available budget, or allocate an award that is less than the total budget depending on the quality of applications.

A maximum of **£4.5 million** will be available for the Competition, with a maximum expected grant value of **£1.5 million** per Project excluding VAT<sup>20</sup>. We anticipate supporting 3 Projects in Phase 1.

The actual number of Phase 1 Projects funded depends on the range of ESA types proposed, the number of eligible Projects, and the number of Projects that are affordable within the allocated budget. Projects which meet the minimum assessment threshold will be ranked by merit. Funding allocations will be made based on achieving a balanced portfolio of Projects which meets the overall Programme objectives. Please see **Section 6.3** for further information on the selection approach.

At the end of each, Projects will undergo a formal Stage Gate Review for progression into the next Phase. Please see **Section 1.6** for further information on Project progression through the Competition.

**Note that all costings will need to be in line with the Grant intensity guidelines set out in Section 4.2.** A single Project can receive up to the maximum grant intensity as shown in Table 4.1 in **Section 4.2**.

Grant funding under the Competition is **only available until October 2024**. All Project activities related to the development of ESAs and DSRSP platforms, including dissemination, reporting and payments, need to be completed by this date.

#### IMPORTANT INFORMATION

##### No Reliance

Nothing in this funding call requires BEIS to award any applicant a Grant Agreement of any specific amount or on any particular terms. Nor does BEIS commit to proceeding to Phase 2

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<sup>20</sup>Grant funding is outside the scope of VAT so you cannot charge output VAT on top of your submitted costs. If you incur non-recoverable input VAT costs, you cannot pass this on to BEIS.



and 3 whether or not Phase 1 is successful. BEIS reserves the right not to award any grant agreements.

Applicants apply for funding in this Competition at their own risk and expense. BEIS will not, under any circumstances, be liable nor make any contribution to the costs of participation, preparing proposals and taking any professional or specialist advice. Applicants accept the risk that they may not be awarded a Grant Agreement. BEIS gives no guarantee or warranty as to the nature, or number of Projects funded.

### 4.2 Grant intensity guidelines

The Competition grant stream will be delivered as a grant programme within the terms of the EU-UK Trade and Cooperation Agreement (TCA) (dated 31 December 2020) and World Trade Organization (WTO) Subsidies and Countervailing Measures. This will define the type of innovation activities which can be funded and will limit the amount of funding which can be provided to each participant in a funded Project.

The application Project must fall within the definition of industrial research as defined below and detailed in **Section 5.1** Competition Eligibility Criteria.

**Industrial Research** means “*planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services.*”

*It comprises the creation of components/parts of complex systems and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation.”*

The funding levels applied for each Project must be consistent with the grant intensity levels summarised in Table 4.1 below. Please note that these are **maximum** funding levels, and BEIS may decide to award less than the maximum in order to strengthen leverage and value for money, taking into account the specific Project requirements.

**Note:** Compliance with grant intensity levels is a requirement of this Competition and the risk of non-compliance rests with the grant recipient. It is therefore crucial that you address these rules within your application, as any errors at this stage may result in BEIS being able to offer only a reduced level of funding or repayment of grant by applicants.

**Table 4.1: Maximum public funding for Projects in the Programme**

Research Category	Type and size of applicant	Maximum amount of public sector funding towards eligible Project costs
<p><b>Industrial Research – Projects delivered by sole organisations or collaborations (i.e. consortium made up of either several businesses, including at least one SME; or business(es) and at least one research organisation); and the results of the Project are widely disseminated (i.e. through conferences, publication, open access repositories, or free or open source software)</b></p> <p>Note: certain conditions must be fulfilled for collaboration and or dissemination (see <b>Section 4.5</b> below)</p>	Small enterprise	80%
	Medium enterprise	75%
	Large enterprise	65%
<p><b>Industrial Research - Universities or Research Organisations</b></p>	<p><b>Universities may be entitled to receive 80% of Full Economic Costs (based on the TRAC methodology) and other research organisations may be entitled to receive full funding for their eligible Project costs as long as they are not undertaking any economic activities in the Project. University and research organisations should confirm the funding position with BEIS prior to application.</b></p>	



## 4.3 Further public funding

In applying to this Competition, you must state if you are applying for, expect to receive, or have received in the past 5 years, any funding for your Project from public authorities in the UK or the European Union (EU) or its agencies. Any other public funding will be cumulated with BEIS funding to ensure that the public funding limit and the grant intensity levels are not exceeded for the Project.

Whilst BEIS will check the information provided to try and ensure that applicants meet the requirements of the grant intensity levels outlined in Table 4.1 applicants should establish that they fall within the grant intensity rules before submitting applications. BEIS requires applicants to notify them of any change to their situations or circumstances during the Project.

If an applicant breaches the grant intensity requirements for this Competition, for whatever reason, BEIS requires repayment of any grant received, including interest, above that which was due. In this situation applicants will be required to repay any funding received. It is also important to ensure that the total grant funding for the Project from public sources (including from the European Commission) does not exceed the relevant permitted grant intensity levels.

As part of the assessment process, the added value and additionality of public funding will be tested. Applicants will need to demonstrate why public funding is required to deliver this Project.

## 4.4 General Subsidy Control requirements

The Programme will support successful applicants through subsidies awarded in the form of grants towards the eligible costs of the proposal. Since 1 January 2021, public authorities must comply with our international commitments on subsidies in the UK-EU TCA, and other trade agreements, as well as the WTO rules on subsidies. Subsidy rules dictate the types of costs that applicants can claim grant support for, as well as the maximum level of grant funding that they can receive which may differ by organisation type, size, and location.

The rules set out in this document apply equally to all applicants from England, Wales, Scotland and Northern Ireland that are eligible to receive funding. Grants awarded to applicants and partner organisations from Northern Ireland will also be subject to scrutiny from the European Commission in accordance with Article 10 of the Northern Ireland Protocol to the UK/EU Withdrawal Agreement.

If the European Commission considers a business or any undertaking to have been incorrectly in receipt of grant funding, that undertaking is likely to be required to repay any aid received to the value of the gross grant equivalent.

Applicants are required to confirm that:

- any award of funding made will constitute a subsidy
- they are responsible for ensuring (and confirm that they will ensure) that subsidy control rules are fully complied with in respect of any award of public funding that may be made available, and including in respect of any funding that their Project may attract (a summary of the subsidy control rules is set out on gov.uk)<sup>21</sup>

### 4.5 Collaboration and Knowledge Dissemination

Under this Competition, the funding levels indicated in Table 4.1 may be awarded to participants as long as they meet one of the following conditions:

- The Project team includes at least one SME; no single Project team member incurs more than 70% of the total eligible Project costs; and research organisations carrying out non-economic activity incur no more than 30% of the total eligible Project costs.
- The Project team includes at least one research organisation, which incurs at least 10% of the total eligible Project costs; no single Project team member incurs more than 70% of the total eligible Project costs; and research organisations carrying out non-economic activity incur no more than 30% of the total eligible Project costs.
- The results of the Project are widely disseminated through conferences, publication, open access repositories, or free or open source software.

Please note that the level of funding awarded is at BEIS' discretion.

### 4.6 Eligible Costs

Eligible costs are those directly associated with the design and development of SAPCs, ESAs and DSRSP platforms according to the Competition Requirements and Deliverables outlined in **Sections 1.5 and 2**.

Further details of eligible and ineligible costs are provided in Section 5 and Annex 5 of the Grant Funding Agreement provided in Annex 1. Applicants must complete the

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<sup>21</sup>Guidance - [Complying with the UK's international obligations on subsidy control: guidance for public authorities](#), on gov.uk.

Project Cost Breakdown Form (attached in the online application form, see **Section 3.2**) to provide the necessary cost information for the assessment process; further itemisation of costs and methods of calculation may be requested to support the application.

## 4.7 Ownership, Maintenance and Decommissioning Costs

All Projects are responsible for cooperating with the Independent Laboratory Testing Partner (Phase 2) and Independent Real World Demonstrator Partner (Phase 3) appointed by BEIS for the mobilisation and demobilisation of their products and platforms at the appropriate time. This includes the provision of ad hoc technical and troubleshooting support to the independent delivery partner(s) (see **Section 1.5**).

Patent costs are out of scope of the grant (see Section 5 of Annex 1 for further detail on eligible costs).

Chosen Grant Recipients will retain responsibility and ownership for the energy smart appliance technologies and related equipment developed and used during the delivery of the grant agreement as set out in Annex 1 of these Guidance Notes.

## 5. Eligibility for Funding

### 5.1 Competition Eligibility Criteria

To be eligible for funding, **proposed Projects must meet all the following eligibility criteria**. These will be listed in the online application form as the Yes/No questions exemplified below.

#### **Project Location**

Over 50% of the Project's activities (as measured by eligible Project costs) must be conducted in the UK.

#### **Innovation and Technology Readiness**

The focus of the Competition is the development of compliant ESAs and a supporting DSRSP platform, using SAPC and OpenADR via the GB smart metering system.

The ESAs must be based on existing hardware whose software is adapted to make the appliance smart and capable of DSR through the relevant specifications:

- minimum TRL 7 for hardware at the time of application
- minimum TRL 4 for software at the time of application

A description of Technology Readiness Levels is provided in **Appendix 1**.

#### **Technology Scope**

The Competition is focused on SAPCs, ESAs and supporting DSRSP platforms capable of providing DSR to the UK electricity grid and designed to the specifications in the GB smart metering system using the SAPC specification. Therefore, an ESA must be communications-enabled and able to respond automatically to price and/or other signals by shifting or modulating its electricity consumption and/or production.

The four categories in scope for this competition must be used only in domestic and small non-domestic settings and they include:

- Smart electric vehicle (EV) charge points, including V2X devices
- Battery storage
- Electric heating, ventilation, and air conditioning (HVAC), including heat pumps, storage heaters and heat batteries
- White goods

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

The Competition will only support proposals that include appliances from the four ESA categories listed above. The technical requirements an ESA will need to meet, to provide DSR services, are specified in the GB smart metering specification. Each application must specify all the different ESAs that will be developed in accordance with the specifications.

Projects under the exclusions list, see **Section 1.3**, will not be eligible for funding.

### **Project activity**

To be eligible for funding, the Project activity must be **industrial research** as defined in **Section 4.2**.

### **Project status & timescale**

BEIS cannot provide funding for retrospective work on Projects or provide funding to Projects which have already begun.

Target dates for key Project milestones will be agreed between the successful bidder and BEIS prior to awarding the grant offer.

The Competition should aim to be completed and approved by BEIS in line with the Grant Funding Agreement terms in Annex 1 by October 2024 (assuming continuation to Phases 2 and 3).

### **Additionality**

Projects can only be funded where evidence can be provided that your proposed innovation would not be taken forward (or would be taken forward at a much slower rate) in the absence of public funding.

### **Terms and Conditions**

Applicants must agree to the published Terms and Conditions to be eligible (see [Competition website](#) for T&Cs).

### **Grant size**

It is anticipated that BEIS will support 3 Projects in this Competition. The total requested grant funding should not exceed £1.5 million per Project excluding VAT. Since BEIS is seeking to maximise the impact of government funding, Projects looking for public funding intensities that are lower than the applicable maximum are likely to score higher in the appraisal process.

### **Grant intensity (Match Funding)**

Given the subsidy categories, applicants will need to have private funding in place to cover the balance of the eligible costs. Such funding may come from a company's own resources or external private sector investors but may not include funding attributable to any public authority. The level of private (match) funding for a Project will depend on the status of the applicant organisation(s) and the specific nature of the proposed Project; **Section 4.2** provides details of the grant intensity levels. Before the grant letter is issued, the applicant will need to provide satisfactory evidence of match funding. This needs to be evidenced, for example by relevant bank statements or letters showing intention to invest into the applicant.

### **Eligible Project costs**

The Project costs must be eligible for funding. See Annex 1, Section 5 for a list of eligible Project costs.

### **Project team composition**

Members of the Project team can be:

- Private sector companies: both SMEs and large enterprises can apply as part of a consortium with other private sector companies, or in a consortium with academic, research or public sector organisations. Consortium bids must be led by a private sector company (SME or large industrial company). Special Purpose Vehicles are permitted to lead consortia only if they are constituted as legal entities.
- Academic, research (including RTOs), public, third sector or community organisations must work as part of a Project consortium with private sector organisations – they cannot work alone or act as lead applicant.
- Applicants (lead Project members of consortium bids) must be able to demonstrate that they are financially viable – see **Section 8.2**.
- Applicants based in Northern Ireland, or with significant interests or subsidiaries in Northern Ireland, will also be subject to scrutiny from the European Commission in accordance with Article 10 of the Northern Ireland Protocol to the UK/EU Withdrawal Agreement.

### **Multiple Applications**

- Lead applicants may only enter as part of one application each into this Stream 2 competition.
- In addition, DSRSPs may only enter as part of one application each into this Stream 2 Competition.



## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

- ESA manufacturers can enter as part of multiple applications as long the category of ESA entered is different per application.
- Please note, Projects consortium member(s) can also apply into the Stream 1 Competition, if their applications demonstrate clearly how they intend to meet the relevant specifications. Within each application. Applicants will need to clarify areas of duplication for work and associated cost should their application of funding be successful under both Streams. If Project consortium members or subcontractors are part of multiple successful applications, they must be able to deliver on them and they must not have applied for funding for the same piece of work more than once.

### 5.2 General BEIS Conditions

Annex 3 lists 'reasons for exclusion' including (but not limited to) bribery, corruption and/or fraud. BEIS would not expect to provide grant offers to companies which meet any of these grounds. By applying to this programme, you confirm that you do not meet any of these reasons for exclusion.

#### **Conflicts of interest**

The BEIS standard terms and conditions of the Grant Agreement include reference to conflict of interest and require bidders to declare any potential conflict of interest to the Secretary of State.

Conflict of interest is defined as the presence of an interest or involvement of the bidder, subcontractor (or consortium member) which could affect the actual or perceived impartiality of the research or analysis.

Where there may be a potential conflict of interest, it is suggested that the Project designs working arrangements such that the findings cannot be influenced (or perceived to be influenced) by the organisation which is the owner of a potential conflict of interest. For example, consideration should be given to the different roles which organisations play in the research or analysis, and how these can be structured to ensure an impartial approach to the Project is maintained.

Successful projects in this Competition will be responsible for providing products to be tested and demonstrated by the independent delivery partner(s) delivering the Laboratory testing and demonstration of interoperable DSR applications in settings indicative of the real-world invitation to tender (ITT).

Due to conflict-of-interest concerns, the successful bidders of Lot 1 and Lot 2 of the Laboratory testing and demonstration of interoperable DSR applications in settings

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

indicative of the real-world ITT will not be able to participate in any Projects successful in this competition, unless conflict is declared and satisfactorily mitigated.

The process by which conflict of interests is managed in the funding application is as follows:

- During the bidding process, applicants may contact BEIS to discuss whether or not their proposed arrangement is likely to yield a conflict of interest.
- Bidders are asked to sign and return Declaration 3 (this is contained in the Competition Application Form and is included for reference in Annex 2) to indicate whether or not any conflict of interest may be, or be perceived to be, an issue. If this is the case, the bidder or consortium should give a full account of the actions or processes that it will use to ensure that conflict of interest is avoided. In any statement of mitigating actions, bidders are expected to outline how they propose to achieve a robust, impartial and credible approach to the research.
- When bids are scored, this declaration will be subject to a pass/fail score, according to whether, on the basis of the information in the proposal and declaration, there remains a conflict of interest which may affect the impartiality of the research.
- Failure to declare or avoid conflict of interest at this or a later stage may result in exclusion from the competition, or in BEIS exercising its right to terminate any grant agreement awarded.

Applicants will be subject to financial viability checks, as described in **Section 8.2**. BEIS will make a decision as to the eligibility of Projects based on the results of these checks.

## 6. Assessment Process and Criteria

The assessment process will be conducted as follows:

**Stage 1:** Applications will be considered initially against the Competition eligibility criteria as set out in **Section 5**.

**Stage 2:** Applications which meet all relevant eligibility criteria as detailed at Stage 1 will be further assessed against a number of Assessment Criteria by a minimum of three assessors (BEIS or BEIS appointed assessors). The Assessment Criteria and linked scoring approach are set out at **Sections 6.1** and **6.2** respectively.

**Stage 3:** Project scores will then be moderated to determine a ranking list that will be used to allocate the funding in line with guidance at **Section 6.3**.

### 6.1 Assessment Criteria

Applicants will be assessed against their response to the Assessment Criteria as set out below. Each criterion will be scored independently and will be given a score between 1 and 5, consistent with the guidance in **Section 6.2**. Applicants should ensure that their responses specifically address the requirements as set out in the ‘Guidance’ section linked to each of the Assessment Criteria.

<b>Assessment Criterion 1 – Proposed innovative technology solution</b>			
Weighting	25%	Maximum Word Count	2,500
<p><b>Guidance</b></p> <p>Applicants will be assessed based on scope for their proposed innovative technology to successfully pass through the three Project phases and to ultimately satisfy relevant Indicative real world setting demonstrations.</p> <p>Applicants should use their responses to:</p> <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of the requirements specified in the GB smart metering system, and SAPC requirements relevant to the Project (building on Annex D and Annex F in PAS 1878) in particular, for ESAs and DSRSP platforms operating in a DSR system, and how their Project will</li> </ul>			

<p>enable meeting the requirements for reaching the government’s net zero target by 2050</p> <ul style="list-style-type: none"> <li>• Describe the proposed technology solution and demonstrate how this solution will meet the relevant requirements and the four core principles</li> <li>• Provide evidence of the current TRL of the proposed DSR system components (both software and hardware TRLs)</li> <li>• Describe how the mandatory interfaces of ESA, SAPC and DSRSP will be designed.</li> <li>• Describe how their proposed solution will support interoperability between the DSRSP and SAPC.</li> <li>• Describe how their proposed solution will ensure a high degree of cyber security is achieved.</li> <li>• Provide evidence to demonstrate the scalability of the technology solution within competition timescales for testing and demonstration in Phases 2 and 3.</li> <li>• Describe how the solution will satisfy all applicable and over-arching regulations pertaining to design, operation and location in real-world settings. Applicants must set out their approach to achieving these, including identifying relevant standards</li> </ul>
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**Assessment Criterion 2 - Project Team and Organisation**

Weighting	20%	Maximum Word Count	2,000 – not including CVs and organogram content
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**Guidance**

Applicants should use their responses to detail how their organisation(s) and proposed Project team can offer the relevant skills, capabilities and experience required to meet the Competition Requirements as set out at **Section 1.5**.

Responses should include:

- An organogram and high-level resource plan clearly detailing the roles of the lead Applicant and wider consortium partners in delivery of the Project.
- A list of any external parties responsible for delivering goods or services worth more than 10% of the total Project value explaining how they will

- ensure that these parts of the Project do not give rise to delays in the delivery of the Project.
- Proposed governance arrangements between the Project delivery team to ensure effective Project delivery (applicants may upload an attachment to support this)
  - For SAPC and ESA manufacturers, provide evidence of developing a SAPC and ESA that can, at a minimum:
    - Provide status and forecast information concerning its energy use to other devices.
    - Receive energy-related information and instructions from other devices.
  - For DSRSPs, provide evidence of:
    - Managing DSR energy flexibility amongst its subscribed customers.
    - Receiving requests from regulated electricity market participants<sup>22</sup> to provide DSR services.
    - Developing a platform/software that uses ESAs to provide DSR services to regulated electricity market participants.
  - Details of the relevant skills, qualifications, and experience of main Project team members, including descriptions and evidence of previous relevant work carried out. Include brief details of relevant previous projects, including the date, location, client, project size and key lessons learnt.
  - Brief CVs of lead individuals within the Project team (CVs should be no longer than 1 page each). You will be able to attach these to the online application form.
  - An explanation of the Project team’s quality management standards, including a description of how the Project team will quality assure the work.

### Assessment Criterion 3 – Project Plan and Management

Weighting	20%	Maximum Word Count	1,000 – Not including separate Project Plan
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<sup>22</sup>These participants could include transmission system operators, distribution system operators and, optionally, electricity supply organizations.

**Guidance**

Applicants' response should include:

- A separate A3 Gantt chart – or similarly detailed Project Plan attachment which:
  - Is structured on a monthly basis for Phase 1 and then quarterly for Phases 2 and 3 respectively
  - Clearly sets out key monthly tasks and milestones (including activities associated with production of Project Deliverables as set out at **Section 2**)
  - Clearly details ownership of each task
  - Highlights critical dependencies – with descriptive narrative and identification of associated Project stakeholders where relevant
- Accompanying narrative detailing how you will ensure effective and appropriate Project management throughout the three Project phases.

**Assessment Criterion 4 – Project Risks**

Weighting	5%	Maximum Word Count	n/a – Completion of Risk Proforma – Max 4 pages Arial font 11
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**Guidance**

Applicants should use their responses to:

- Detail in the provided Risk Proforma up to 5 key risks (discounting financial risks) to successful delivery of the requirements as set out at **Section 1.5**.
- Your response should include:
  - A summary of the risk – including dependencies
  - The potential risk impact
  - Proposed approach to risk mitigation.

### Assessment Criterion 5– Project Funding

Weighting	10%	Maximum Word Count	1,500 – not including attachments
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#### Guidance

Applicants are asked to provide explanatory narrative – and attach relevant letters of support – for the ‘Project Team contribution - cash’ inputs on the ‘Summary’ tab of the ‘Project Cost Breakdown Form – Grant.’ Specifically, Applicants should:

- Provide further details regarding the sources of each separate Project team contribution setting out:
  - Funding Amount.
  - Entity providing funding.
  - Funding type(s).
  - For each identified funding type:
    - A timetable of actions to ensure that match funding will be available if the Grant Application is successful, clearly highlighting key dependencies.
    - Any associated risks in securing the match funding and how these will be managed.
- Attach to their application:
  - Letters of support from each funding partner on company / organisation letterhead confirming intent to participate level of any funding contribution and that this funding will be provided to required timetable if the Grant Application is successful. (mandatory)
  - Letters of support from any other party who will provide match funding to include level of funding contribution and that this funding will be provided to required timetable if the Grant Application is successful (mandatory where match funding is to be provided by any other party)
  - For Applications made by Special Purpose Vehicles (SPV’s) Letters of support should also confirm the willingness of each funding partner to provide the Parent Company Guarantee (‘PCG’) which would be a condition of Grant Approval (mandatory for SPV Applicants)

**Please note: Project team contribution in kind are not permitted under this Competition.**

### Assessment Criterion 6 – Value for Money

Weighting	15%	Maximum Word Count	1,500
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#### Guidance

Applicants are asked to explain how both the value and nature of the costs and overheads for which grant funding is sought are appropriate and necessary to Project delivery. Specifically, Applicants should:

- Provide overarching commentary to accompany the detailed breakdown of their Project costs for all phases as set out in the Project Cost Breakdown Form. Please detail how you have satisfied yourself that all costs and overheads are realistic, robust, justified, and fair market value.
- Demonstrate Project **additionality**, clearly setting out why grant funding is necessary for the Project to be taken forward, and why, without funding, the Project would either not go ahead as planned, go ahead but on a reduced scale, or go ahead but over a longer timescale.

**Bidders should note that BEIS will not normally pay overheads of over 50%, and overheads above this amount will need to be fully justified.**

### Assessment Criterion 7 – Knowledge Dissemination

Weighting	5%	Maximum Word Count	500
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#### Guidance

Applicants will be expected to submit a detailed knowledge dissemination plan, including wherever feasible the publication of detailed technical specifications or part thereof.

Applicants are expected to:



- provide descriptions of how outputs will be shared with industry, including key stakeholders, lessons learned, and challenges faced.
- demonstrate the scale and scope of the proposed dissemination and knowledge transfer activities.

## 6.2 Scoring Guidance

We will select Projects that offer the best overall value for money, based on their assessment against the criteria outlined in **Section 6.1**, and subject to guidance as set out at **Section 6.3** below. The Projects will be scored using the scoring system outlined below in Table 6.1. Projects must score a minimum moderated total weighted score of 50% (based on total score), and a minimum moderated score of 2 out of 5.

**Table 6.1: Scoring guidance**

Score	Description
1	<b>Not Satisfactory:</b> There is no evidence to <b>very little evidence</b> that the question has been satisfactorily answered and <b>major omissions</b> are evident.
2	<b>Partially Satisfactory:</b> There is <b>little evidence</b> that the question has been satisfactorily answered and <b>some omissions</b> are evident. <b>Much more detail is needed.</b>
3	<b>Satisfactory:</b> There is <b>reasonable evidence</b> that the question has been satisfactorily addressed but <b>some omissions</b> are still evident and <b>further detail</b> is needed.
4	<b>Good:</b> The question has been well addressed with a <b>good evidence base</b> , with only <b>minor omissions or lack of detail.</b>
5	<b>Excellent:</b> There is <b>clear evidence</b> that the <b>question has been completely addressed</b> in all aspects, with questions answered clearly, concisely with a <b>strong evidence base.</b>

## 6.3 Selection Approach

Applications will be assessed by a minimum of three assessors, which could include BEIS assessors and independent assessors (technical and commercial experts). A moderation meeting will be held at the end of the assessment process to agree the overall weighted scores for each of the Projects.

BEIS anticipates providing grant funding to three Projects and wishes to use the Competition to support a balanced portfolio of Projects with respect to ESA categories. **Specifically, BEIS wishes to use the Competition to support the following Solutions:**

- At least one **EV Charge Point Solution**
- At least one **Heat Pump Solution**

Consistent with this aim, whilst grant funding will be offered to the compliant Applicant receiving the first highest weighted score, BEIS reserves the right not to offer grant funding to the second and third highest scoring Applicants if this award would result in the above combination of Solutions not being achieved.

In such a scenario BEIS would instead award grant funding to the next highest ranked Applicant(s) (based on weighted score) proposing to deliver one or more of the missing Solution types as set out at **Section 1.3.3**.

BEIS may allocate less than the total Competition budget depending on the quality of the applications. Where Applicants cannot be divided by either of these additional tests, then another moderation meeting will be convened where the assessors will make a decision on with Project or Projects should be funded.

## 7. Reporting

### 7.1 Project monitoring and reporting

This Competition has a requirement to demonstrate the benefits and KPIs that it is seeking to realise for the IDSR Programme and the wider NZIP. This ensures that the Competition can robustly demonstrate its contribution to key benefits such as improved system flexibility and reduced peak energy demand. These benefits and their respective measures are shown in Table 7.1 in **Section 7.2**.

Project monitoring and reporting is required to track Project progress and ensure payments are made according to a schedule of milestones to be agreed between BEIS and grant recipients. This reporting will be in confidence to BEIS and its Project Monitoring Officers and will not be published. Reporting requirements and the relevance of benefits to KPIs is discussed in **Section 7.4**.

### 7.2 Benefits realisation and management

Applicants should be aware that successful applications will be asked during the project kick-off, to select one or more benefits that their Project will contribute to from the table below. Projects should be able to select benefits for which they can report on a minimum of one measure, and should note that, they will be encouraged to report on more than one measure for their selected benefits. In the table below the 'Benefit/Measure' column sets out the full list of benefits which Applicants can select from, and the 'Links to KPIs' column highlights the equivalent NZIP KPI (where equivalent) – see **Section 7.3** for further detail on NZIP KPIs.

**Table 7.1: Benefits, measures and KPIs**

Benefit/Measure	Links to KPIs
Reduction in carbon emissions	
Potential volume of CO2 savings (kT CO2e/yr)	9
Enabling increased renewable energy on the grid	9
Reduction in energy consumption - energy saving per unit/yr (MWh/yr)	7ii
Reduced peak demand for power	7ii

INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

Accelerate Commercialisation	
Value of sales	8
Number and value of contracts signed	8
Amount of private funding leveraged at Project close	6i
Amount of follow-on funding received	6ii
Increased deployment of commercially viable solutions	7iii
Total value of exports/increased export potential	8
Technology Readiness Level progression	5
Cost reduction of low carbon technologies	
Reduction in cost of the innovation	5
Reduction in the unit cost of energy	7i
Reduced cost to consumers	7i
Demonstrating UK leadership on the innovation	
Number of domestic and international collaborations	4
Number of invitations to speak at international events	N/A
Amount of domestic and international interest in the technology	N/A
Amount of media coverage	N/A
Increased knowledge stimulating further innovation	
Successful completion and publication of Project reports demonstrating viability of new technologies	N/A
Amount of further R+D capital committed to the innovation	6ii
Amount of follow on funding received	6i/6ii
Number of trial consumers recruited and retained during the Project	N/A
Growth and resilience in UK companies	

Number of jobs supported	3
Increase in the market potential of the innovation	5
Developing the supply chain: Number of new companies in the Projects supply chain	4
Amount of follow-on funding	6ii
Increased flexibility of supply	
Number of flexible tariffs that were developed and offered	7iii
Number of consumers who signed up to flexible tariffs	7iii/7i/8
Number of low carbon technologies offered to consumers giving access to flexible tariffs	7iii/8

### 7.3 Key Performance Indicators

BEIS requires all grant recipients under the NZIP to report on key performance indicators (referred to as NZIP KPIs) to provide a consistent approach to reporting evidence, and to track and measure key outputs, outcomes and impacts. The evidence collected is used to demonstrate the impact of the NZIP on achieving the government's Net Zero ambitions and is necessary to be able to run future competitions.

Grant recipients will be required to report on KPIs at various intervals for each Project, including at the start of the Project, annually, at Project closure and for three years after Project closure. BEIS will supply grant recipients with a reporting template to complete at set intervals, and recipients are expected to return the template to their Monitoring Officer upon completion, who will review and quality assure it. At Project start, your Project Monitoring Officer will provide further details about the calculation of these KPIs and assist with the initial completion and measurement.

Please note that it may at times be necessary to make changes to the NZIP KPIs, data collection modes or frequencies. We will endeavour to keep all changes to a minimum and communicate any implications to you via the Monitoring Officers in advance of collection.

BEIS will be collecting the following KPIs, with data which will be provided by Monitoring Officers marked in italics. Not all data will be collected annually.

**Table 7.2: NZIP KPIs**

<b>KPI</b>	<b>KPI description</b>	<b>Metrics</b>
<i>KPI 1</i>	<i>Number of NZIP Projects supported</i>	<ul style="list-style-type: none"> <li><i>Project start and completion.</i></li> </ul>
<i>KPI 2</i>	<i>Number of NZIP Projects that have met objectives</i>	<ul style="list-style-type: none"> <li><i>Extent to which Project objectives have been met to date</i></li> <li><i>Change in objectives and reasons for change</i></li> </ul>
<i>KPI 3</i>	<i>Number of organisations supported to deliver the Project</i>	<ul style="list-style-type: none"> <li><i>Lead partner delivering the Project: name, organisation size and number of jobs supported within the organisation to deliver the Project.</i></li> <li><i>Other partner organisations involved in delivering the Project as named on the Contract or Grant: name, organisation size and number of jobs supported within the organisation(s) to deliver the Project.</i></li> </ul>
<i>KPI 4</i>	<i>Number of active contractual and non-contractual business relationships supported</i>	<ul style="list-style-type: none"> <li><i>Number of contractual relationships: name and type of contractual relationship.</i></li> <li><i>Number of formal non-contractual business relationships: name and type of non-contractual relationship</i></li> <li><i>Extent to which your organisation expanded its network of business relationships as a result of the Project</i></li> </ul>
<i>KPI 5</i>	<i>Technology Advancement</i>	<ul style="list-style-type: none"> <li><i>Technology Readiness Levels (current and anticipated)</i></li> <li><i>Other technology improvement indicators: patents applied for or granted; academic, technical or non-technical publications generated and knowledge exchange events attended (such as conferences)</i></li> </ul>
<i>KPI 6i</i>	<i>Initial Financial Leverage to deliver Project</i>	<ul style="list-style-type: none"> <li><i>Project funding structure: Amount in £m of BEIS, Other Public Sector and Private Funding.</i></li> </ul>

INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

6ii	Follow-on Funding secured	<ul style="list-style-type: none"> <li>• Amount of follow-on funding raised and the source (public or private).</li> </ul>
7iii	Increase in energy system flexibility	<ul style="list-style-type: none"> <li>• Scope and scale of impact on energy system flexibility</li> <li>• Route to increasing energy system flexibility</li> </ul>
KPI 8	Commercialisation advancement	<ul style="list-style-type: none"> <li>• Commercial readiness levels (current and anticipated)</li> <li>• Steps towards commercialisation incl. licensing agreements, commercial partnerships, product certifications etc.; national/ international standards passed</li> <li>• UK and International sales secured and their value (£m)</li> </ul>
KPI 10	Policy influence	<ul style="list-style-type: none"> <li>• Whether, how, and to what effect evidence from the Project has informed policy development</li> <li>• Whether Projects have engaged in activities with industry or civil society</li> </ul>

## 7.4 Reporting requirements

Regular Project monitoring and reporting will take two forms:

- Project teams will be required to meet with their Monitoring Officer at least once per month to discuss Project progress, finance updates and highlight successes, issues, risks.
- Projects will be required to submit a Project progress report every quarter. We expect this report to cover, as a minimum, the following Quarterly Project Management Information.
  - progress against the Project delivery plan and Project milestones and deliverables (see **Section 2**)
  - upcoming work over the next quarter
  - financial information (including budget spend so far and budget forecast)
  - an updated risk register (including flagging where risk ratings have changed or new risks/issue have emerged)
  - any key lessons learnt during delivery, and progress against relevant programme benefits (see **Section 7.2**).

The Competition will be reporting against a selection of the benefits listed above in Table 7.1 using the measures listed to provide evidence for each of these benefits. The corresponding KPIs listed relate to the portfolio-level KPIs discussed in **Section 7.3**. This table is **for information only** and serves to outline the expected level of granularity for reporting against benefits.

Each successful Applicant will be asked to complete a Benefits Plan (see **Appendix 3** for an example) at the Project kick-off meeting. Some benefits will have a quantitative measure that will be tracked using metrics that the Project provides; other benefits are qualitative, the success of which could be determined by the quality of reports and other evidence produced. At this stage, Projects may also identify additional measures that they will report on to demonstrate a particular benefit, although this is not a necessary requirement.

Progress against Projects' Benefits Plans will be monitored on a quarterly basis by the Project Monitoring Officers. Projects will be required to make available any Project data that is reasonably necessary for reporting against the Project benefits. They will also be required to declare where they may need assistance in contributing to the Project benefits.



## 7.5 Evaluation requirements

Successful applicants will also be required to participate in and facilitate an evaluation of this programme, which will be delivered by an external contractor commissioned by BEIS. The specific role of the external evaluator and scope of the evaluation is yet to be confirmed, though it is likely to include qualitative and quantitative data collection and analysis in order to assess programme delivery, impact and value for money and identify learnings. Projects will be required to participate in and contribute to the evaluation activities, both during and after final contract payments, including by providing relevant primary and secondary data to the evaluation contractor and by participating in research interviews.

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## 8. Project plans and finances

### 8.1 Project Plans and Finances

As set out in **Section 6.1**, all Projects must submit a Project plan (Gantt chart, or equivalent) for Phases 1-3 of this competition as part of their application; the plan must detail the Project timeline, the various work packages and the Project milestones and deliverables.

A detailed cost breakdown is required to enable assessment of value for money using the BEIS Project Cost Breakdown Form - Grant.

Financial information should include costs for all phases of the Project, detailing labour (including personnel rates), material and capital equipment costs, and any travel and subsistence requirements. Applicants are required to complete a detailed financial summary template (the Project Cost Breakdown Form) as part of the application process. Further guidance as to completing this Form is provided at **Appendix 4**.

During the assessment of applications, the Project costs and plans that are submitted as part of the application process will be fully assessed along with the answers to the questions on the application form, to ensure they are what might be reasonably expected. This will be reflected in the score awarded for Assessment Criteria 3 and 6

Applicants will also be expected to demonstrate additionality, specifically that without grant support, the Project would either not go ahead as planned, go ahead but on a reduced scale, or go ahead but over a longer timescale. Applicants who fail to demonstrate additionality will be excluded from the Competition.

The eligibility of all costs under subsidy rules and the financial viability of your organisation will be checked following the decision to select an applicant but before a formal offer is made. Being contacted for this information does not indicate either success or failure in the assessment process.

While BEIS understands that Project costs are subject to change prior to any funding agreement and throughout the course of the Project, we do expect the final version of the Project Cost Breakdown Form – Grant to be our guide to Project expenditure, so delivery and costs should not vary significantly from this without prior agreement of the Department.

## 8.2 Financial viability checks

### Overview

BEIS will undertake financial viability checks on all provisionally successful Applicants. Where there is more than one organisation in the Applicant group, the required financial information (see below) should be provided for any entity who is forecast to deliver at least 25% of the Contract by value – including sub-contractors. Applicants may be asked to respond to clarification questions linked to these financial viability checks and, where relevant asked to provide satisfactory evidence of how identified financial risks are being actively managed and mitigated.

The Applicant's/Project's Financial Viability will take into account (amongst other things) whether the Applicant is able to demonstrate a robust business plan and financially sustainable business model in respect of the relevant Project. Tests of financial viability will be conducted in line with industry best practice. They may include (but are not limited to):

- whether an Applicant/Project/ultimate parent company has sufficient liquidity (it is capable of covering its short-term commitments);
- whether an Applicant/Project/ultimate parent company is financially autonomous (it is capable of covering its debt costs); and
- whether an Applicant/Project/ultimate parent company is solvent (it is capable of covering its medium and long-term commitments).

### Required Financial Information

Checks will include reviewing the latest independently audited accounts filed on the Companies House database.

Where a company or organisation is not required to file accounts with Companies House, other financial information will be requested to enable an appropriate financial viability review to be undertaken. This might include:

- A copy of last two years accounts as filed with Companies House; or
- A copy of last two years accounts – if not obliged to file with Companies House; or
- A statement of the turnover, Profit and Loss Account/Income Statement, Balance Sheet/Statement of Financial Position and Statement of Cash Flow for the most recent year of trading for this company or organisation
- Alternative means of demonstrating financial status if any of the above are not available (for example, forecast of turnover for the current year and a

statement of funding provided by the owners and/or the bank, charity accruals accounts or an alternative means of demonstrating financial status).

If you are bidding as a new Project company, we will review letters of support from Project partners / investors and may also review the financial statements of each partner.

### **Parent Company Guarantees and other potential mitigations**

Where an applicant is a special purpose vehicle (SPV), BEIS will require a parent company guarantee(s) (PCG) from relevant companies or organisations. BEIS shall accept this as satisfying the applicant's financial viability checks subject to the necessary financial viability checks being performed on the parent company to BEIS' satisfaction.

The Department may also, at its discretion require PCGs or other satisfactory mitigations to be put in place in relation to other provisionally successful Applicants, ahead of Contract award. Acceptable mitigations may include but are not limited to those set out in Section 3 of the [Government and Commercial Function's Assessing and Monitoring the Economic and Financial standing of Bidders and Suppliers \(publishing.service.gov.uk\)](https://publishing.service.gov.uk).

**Where provisionally successful applicants are unable to provide mitigations to BEIS' satisfaction they will be excluded from the Competition.**

### **Applicant Contribution**

Grant funding will be supplemented by private investment according to the required grant aid intensities, as outlined in **Section 4.2**.

This assessment will directly impact what (if any) Grant Funding will be offered. It is critical that public funds support a viable business model and a credit worthy Applicant. Furthermore, it is a requirement that the Applicant provides their own substantial contribution to the investment costs or a relevant Project in addition to public funds. It will be imperative for BEIS to ensure that the Applicant is capable of meeting those commitments.

All Applicants must provide their own substantial contribution to the investment costs of a relevant Project in addition to amounts sought from BEIS (and other public funds). This is to ensure adequate incentivisation of the Project. BEIS will determine appropriate Applicant contribution to ensure this and to protect public funds. This will feed into the determination of whether to award any grant and (if so) the quantum of any such grant. For the avoidance of doubt, please note that in addition to the Applicant's own commitment BEIS will consider other forms of finance in a business case too – including the viability and impact on the Applicant's own commitments.

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

The Applicant should include details regarding the sources of funding for the Project and how they intend to pay for it (including in respect of any counterfactual). This must demonstrate the relative size of HM Government's requested contribution (see above re significant contribution).

Critically, Applicants will need to demonstrate how public funding will help bridge any gap, and that it is the minimum funding required for the Project to go ahead.

Before your Project starts, BEIS will ask for evidence that you have the funding mechanisms in place to manage your cash flow across the life of your Project. This could include letters of credit or other such mechanisms. We do not expect you to have cash deposits to cover the entirety of your Project at the start. However, if you do not complete your Project due to cash flow problems that you could have anticipated and managed, we may request repayment of any grant already issued to you.

BEIS will not make payments in advance of need and typically makes grant payments in arrears on satisfactory completion of agreed milestones and outputs. BEIS understands, however, the difficulties which small businesses may face when financing this type of Project. BEIS will explore cash flow issues with the applicant as part of developing the financial and milestone profile during the Grant Award process. BEIS will offer flexibility in terms of profiles and payments, within the confines of the requirements for use of public money within which it operates.

### **Financial Viability checks Post-Grant Award**

During the Contract period, successful Applicants must provide to BEIS all subsequent year end accounting data – audited or alternative as set out above – within 30 days of accounts being issued, and this will be subject to the same scrutiny as set out above. Successful applicants should also immediately notify BEIS, in writing, where they believe, on the balance of probabilities, that they will not be able to access sufficient match funding to complete the Project.

BEIS reserves the right to cease payment of allocated grant where it has reasonable grounds to believe that the successful Applicant is unlikely to be able to meet its future match-funding commitment.

### **Grant Agreement payments**

BEIS will not make payments in advance of need and typically makes grant payments in arrears on satisfactory completion of agreed milestones and deliverables. BEIS therefore anticipates making payment after delivery of Deliverables that meets all relevant quality content and format requirements.

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

BEIS understands, however, the difficulties which small businesses may face when financing this type of project. BEIS will explore cash flow issues with the Applicant as part of developing the financial and milestone profile during the Contract Award process. BEIS will offer flexibility in terms of profiles and payments, within the confines of the requirements for use of public money within which it operates.

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# 9. Notifications and Publication of Results

## 9.1 Notification

Applicants will be informed by email whether their application has been successful, subject to completion of financial due diligence and compliance with the terms and conditions of the **Grant Offer**.

BEIS may wish to publicise the results of the scheme which may involve engagement with the media. At the end of the application and assessment process, BEIS may issue a press release or publish a notice on its website. These public documents may, for example, outline the overall results of competitions and describe some of the Projects to be funded.

**Confidentiality request:** Some organisations may want their activities to remain confidential and you will be given a chance to opt out of any involvement in media relations activity and further case study coverage of Projects, should you see this as being absolutely necessary. However, the public description of the Project you provide in your application will be made available in the public domain if your application is successful, and you are not able to opt out of the Project description being published. As such, you must provide a short description (maximum of 400 words) of your proposed Project.

In addition, all funded Projects must include reporting and dissemination milestones – agreed with BEIS - as part of their Project deliverables, determined after the award of the grant (see **Section 2** for further information on deliverables).

Any organisation that wishes to publicise its Project, at any stage, must contact the Competition Project Manager or their Project Monitoring Officer at BEIS before doing so.

## 9.2 Publication of results

In return for provision of funding and non-financial support during demonstration activities, BEIS expects to be able to use and share the results and outputs of the Project activities with other government Departments, industry and other stakeholders to further understanding and progress technology development and deployment.

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

BEIS also wishes to publicise details of the award recipients. Therefore, on or after issuing a grant agreement, BEIS will publish the following information:

- Identity of the participant and its partners;
- Project summary information including aims and expected outcomes of the Project and technology area;
- Total award value.

Following completion of the funded Projects, BEIS will publish on its website a summary of the funded activities and the outcomes achieved. This will include a final summary report from each Project detailing technical approach, key achievements and recommendations.

BEIS may also revisit Projects at a later date and publish an evaluation report for the scheme as a whole.

BEIS, however, recognise the need to maintain confidentiality of commercially sensitive information. BEIS will consult applicants regarding the nature of information to be published, in order to protect commercially sensitive information.



## 10. Intellectual Property Requirements

The proposed arrangements for intellectual property rights (IPR) and exploitation of IPR are set out in the agreement terms and conditions for this competition, in Annex 1.

Grant recipients will retain the intellectual property generated from the Project and will be expected to identify and protect patentable knowledge within 3 years of its creation. Costs associated with securing intellectual property arising from or associated with this Project are not eligible for reimbursement under this agreement and will be covered by grant recipients.

The proposed arrangements for IPR and their exploitation are set out in the example agreement terms and conditions for this Competition in Annex 1 of these Guidance Notes.

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# 11. Feedback, re-application and right of appeal

A short summary of key feedback regarding the applications will be provided to all applicants. This feedback will be based on the comments of both BEIS assessors and external technical assessors, if used. No additional feedback will be provided and there will be no further discussion on the application.

The feedback from the assessors is intended to be constructive. Comments are not a checklist of points which must be answered or argued in a resubmitted application as the assessors/requirements may be different and it is your decision as to whether you act on the suggestions made.

BEIS' decision regarding any application is final and no appeal process is in place, so it is important that you make any points you wish to make clearly and concisely in the application form.

## 12. Confidentiality and Freedom of Information

The Freedom of Information Act 2000 (“FOIA”) and the Environmental Information Regulations 2004 (“EIR”) apply to the Department.

You should be aware of the Department’s obligations and responsibilities under FOIA or EIR to disclose, on written request, recorded information held by the Department. Information provided in connection with this procurement exercise, or with any contract that may be awarded through this exercise, may therefore have to be disclosed by the Department in response to such a request, unless the Department decides that one of the statutory exemptions under the or the exceptions in the EIR applies. Where any request is made to BEIS under the FOIA for the release of information relating to any Project or applicant, which would otherwise be reasonably regarded as confidential information, BEIS will notify you of the request as soon as we become aware of it

If you wish to designate information supplied as part of your application as confidential, or if you believe that its disclosure would be prejudicial to any person’s commercial interests, you must provide clear and specific detail as to the precise information involved and explain (in broad terms) what harm may result from disclosure if a request is received, and the time period applicable to that sensitivity. Such designation alone may not prevent disclosure if in the Department’s reasonable opinion publication is required by applicable legislation or government policy or where disclosure is required by the Information Commissioner or the First-tier Tribunal (Information Rights).

As part of the application process all applicants are asked to submit a public description of the Project. This should be a public facing form of words that adequately describes the Project but that does not disclose any information that may impact on Intellectual Property (IP), is confidential or commercially sensitive. The titles of successful Projects, names of organisations, amounts awarded and the description of the Project may be published once the award is confirmed as final.

Additionally, the government’s transparency agenda requires that application documents are published on a designated, publicly searchable web site. The same applies to other application documents issued by the Department (including the original advertisement and the pre-qualification questionnaire (if used)), and any contract entered into by the Department with its preferred bidder(s) once the procurement is complete. By submitting an application you agree that your participation in this procurement may be made public. Aside from the public description of your Project (see above), the answers you give in this response will

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

not be published on the transparency web site (but may fall to be disclosed under FOIA or EIR (see above)). Where application documents issued by the Department or agreements with its grant recipients fall to be disclosed the Department will redact them as it thinks necessary, having regard (inter alia) to the exemptions/exceptions in the FOIA or EIR.

WITHDRAWN

## 13. Terms and Conditions

The Department's Terms and Conditions for Grant Funding Agreements will apply to this Competition (see **Annex 1**).

WITHDRAWN

## 14. Further Instructions to Bidders

The Department reserves the right to amend the enclosed Competition documents at any time prior to the submission deadline (**2pm on 29 July 2022**). Any changes are most likely to include editorial errors and include FAQs from questions asked from stakeholders/applications before **2pm on 21 June 2022**. Any such amendment will be numbered, dated and issued on the website. Where amendments are significant, the Department may, at its discretion, extend the deadline for receipt of proposals.

The Department reserves the right to withdraw this funding opportunity without notice and will not be liable for any costs incurred by bidders during any stage of the process. Bidders should also note that, in the event a proposal is considered to be fundamentally unacceptable on a key issue, regardless of its other merits, that proposal may be rejected. By issuing this Competition document, the Department is not bound in any way and does not have to accept the lowest, or any, proposal and reserves the right to accept a portion of any proposal unless the applicant expressly stipulates otherwise.

### 14.1 Application checklist

As set out in **Section 3.2**, to submit an application for this Competition, you must complete the online registration form, available [here](#), and use the resulting password to complete your online application form.

Please answer all questions on the application form fully.

Please download from your application form, complete and upload to your application form the following documents. All these documents are also available on the [Competition website](#).

- Project Cost Breakdown Form - Grant
- Additional Partner Information Form (if you have more than 3 Project partners)
- Signed declarations:
  - Signed Statement of Non-Collusion (Declaration 1)
  - Signed declaration form agreeing to the terms of the application process (Declaration 2)
  - Signed Conflict of Interests statement (Declaration 3)

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

- Signed Code of Practice for Research (Declaration 4)
- The General Data Protection Regulation (GDPR) Assurance Questionnaire for Bidders' (Declaration 5)
- Signed Modern Slavery statement (Declaration 6)

Please **complete and upload to your application form** the following documents. These can be based on your own template (other than the risk proforma) but must include sufficient detail so that your application can be assessed against the relevant assessment criteria.

- Project plan (robust and detailed Project Gantt chart, or equivalent)
- Risk Proforma (template provided)
- CVs and organogram
- Letters of support

### 14.2 Data Protection and Security

The successful grant recipient must comply with all relevant Data Protection Legislation, as defined in the terms and conditions applying to this Grant Agreement. A guide to the UK General Data Protection Regulation published by the Information Commissioner's Office, can be found [here](#).

Annex 2 contains a "The General Data Protection Regulation Assurance Questionnaire for Bidders" (Declaration 5) to evidence the extent of readiness. The Authority may ask the bidders to provide evidence to support the position stated in the questionnaire. The Authority may require the successful bidders to increase their preparedness where the Authority is not satisfied that the grant recipient will be in a position to meet its obligations under the terms and conditions. If the bidder fails to satisfy the Authority that it will be in a position to meet its obligations under the terms and conditions in the event that the bidder is successful, the Authority reserves the right to exclude the bidder from this Competition.

### 14.3 Non-Collusion

No application will be considered for acceptance if the bidder has indulged or attempted to indulge in any corrupt practice or canvassed the application with an officer of the Department. Annex 2 contains a "Statement of non-collusion" (Declaration 1); any breach of the undertakings covered under items 1 - 3 inclusive will invalidate your proposal. If a bidder has indulged or attempted to indulge in

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

such practices and the proposal is accepted, then grounds shall exist for the termination of the contract and the claiming of damages from the successful bidder. You must not:

- Tell anyone else what your funding request is or will be before the time limit for delivery of applications.
- Try to obtain any information about anyone else's application or proposed application before the time limit for delivery of applications.
- Make any arrangements with another organisation about whether or not they should apply, or about their or your requested funding amount.

Offering an inducement of any kind in relation to obtaining this or any other funding with the Department will disqualify your application from being considered and may constitute a criminal offence.

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# Appendix 1 – Technology Readiness Levels (TRLs)

Technology readiness levels are an indication of the maturity stage of development of a technology on its way to being developed for an application or product. The table below defines hardware TRLs 1 to 9.

**Appendix Table 1.1: Description of hardware TRLs**

TRL	Description
<b>Research and Development</b>	
TRL 1 – Basic Research	Scientific research begins to be translated into applied research and development.
TRL 2 – Applied Research	Basic physical principles are observed, practical applications of those characteristics can be 'invented' or identified. At this level, the application is still speculative: there is not experimental proof or detailed analysis to support the conjecture.
<b>Applied research and development</b>	
TRL 3 – Critical Function or Proof of Concept Established	Active research and development is initiated. This includes analytical and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
TRL 4 – Laboratory Testing/Validation of Component(s)/Process(es)	Basic technological components are integrated to establish that the pieces will work together.

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

TRL 5 – Laboratory Testing of Integrated/Semi-Integrated System	The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment.
<b>Demonstration</b>	
TRL 6 – Prototype System Verified	Representative model or prototype system is tested in a relevant environment.
TRL 7 – Integrated Pilot System Demonstrated	Prototype near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment.
Pre-commercial deployment	
TRL 8 – System Incorporated in Commercial Design	Technology is proven to work -actual technology completed and qualified through test and demonstration.
TRL 9 – System Proven and Ready for Full Commercial Deployment	Actual application of technology is in its final form - technology proven through successful operations.

The table below defines software TRLs 1 to 9.

**Appendix Table 1.2: Description of software TRLs**

TRL	Description <sup>23</sup>
TRL 1 = Basic principles observed and reported	Lowest level of software readiness. Basic research begins to be translated into applied R&D. Examples might include a concept that can be implemented in software or analytic studies of an algorithm’s basic properties.
TRL 2 – Technology concept and/or application formulated.	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there is no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
TRL 3 – Analytical and experimental critical functions and/or characteristic proof of concept.	Active R&D is initiated. This includes analytical studies to produce code that validates analytical predictions of separate software elements. Examples include software components that are not yet integrated or representative but satisfy an operational need. Algorithms run on a surrogate processor in a lab environment.
TRL 4 – Component and/or bread-board validation in lab environment	Basic software components are integrated to establish that they will work together. They are relatively primitive with regard to efficiency and reliability compared to the eventual system. System software architecture development initiated to include interoperability, reliability, maintainability, extensibility, scalability, and security issues. Software integrated with simulated current/legacy elements as appropriate.
TRL 5 – Component and or bread-board validation in relevant environment	Reliability of software ensemble increases significantly. The basic software components are integrated with reasonably realistic supporting elements so that they can be tested in a simulated environment. Examples include high-fidelity lab integration of software components. System software architecture established. Algorithms run on a processor(s)

<sup>23</sup>[https://asc.army.mil/docs/pubs/alt/2004/3\\_MayJun/articles/10\\_Use\\_of\\_Tech\\_Readiness\\_Levels\\_for\\_Software\\_Dev\\_200403.pdf](https://asc.army.mil/docs/pubs/alt/2004/3_MayJun/articles/10_Use_of_Tech_Readiness_Levels_for_Software_Dev_200403.pdf)

INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

	<p>with characteristics expected in the operational environment. Software releases are “Alpha” versions and configuration control initiated. Verification and validation initiated.</p>
<p>TRL 6 – S model or prototype demonstration in a relevant environment</p>	<p>Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in demonstrated readiness. Examples include testing a prototype in a live/virtual experiment or in simulated operational environment. Algorithm run on processor or operational environment integrated with actual external entities. Software releases are “Beta” versions and configuration controlled. Software support structure in development. Verification and validation in process.</p>
<p>TRL 7 – System prototype demonstration in an operational environment</p>	<p>Represents a major step up from TRL 6, requiring the demonstration of an actual system prototype in an operational environment. Algorithms run on processor of the operational environment integrated with actual external entities. Software support structure in place. Software releases are in distinct versions. Frequency and severity of software deficiency reports do not significantly degrade functionality or performance. Verification and validation completed.</p>
<p>TRL 8 – Actual system completed and “flight qualified” through test and demonstration.</p>	<p>Software has been demonstrated to work in its final form and under expected conditions. In most cases, this TRL represents the end of system development. Software releases are production versions and configuration controlled, in a secure environment. Software deficiencies are rapidly resolved through support structure.</p>
<p>TRL 9 - Actual system “flight proven” through successful mission</p>	<p>Actual application of the software in its final form. In almost all cases, this is the end of the last bug-fixing aspects of system development. Software releases are production versions and configuration controlled. Frequency and severity of</p>

operations.	software deficiencies are at a minimum.
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Business, Energy  
& Industrial Strategy

## Appendix 2 - Exclusion Grounds

### Mandatory Exclusion Grounds

Public Contract Regulations 2015 R57(1), (2) and (3)

Public Contract Directives 2014/24/EU Article 57(1)

Participation in a criminal organisation

Participation offence as defined by section 45 of the Serious Crime Act 2015

Conspiracy within the meaning of

- section 1 or 1A of the Criminal Law Act 1977 or
- article 9 or 9A of the Criminal Attempts and Conspiracy (Northern Ireland) Order 1983

where that conspiracy relates to participation in a criminal organisation as defined in Article 2 of Council Framework Decision 2008/841/JHA on the fight against organised crime;

Corruption

Corruption within the meaning of section 1(2) of the Public Bodies Corrupt Practices Act 1889 or section 1 of the Prevention of Corruption Act 1906;

The common law offence of bribery;

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

Bribery within the meaning of sections 1, 2 or 6 of the Bribery Act 2010, or section 113 of the Representation of the People Act 1983;

### Fraud

Any of the following offences, where the offence relates to fraud affecting the European Communities' financial interests as defined by Article 1 of the convention on the protection of the financial interests of the European Communities:

- the common law offence of cheating the Revenue;
- the common law offence of conspiracy to defraud;
- fraud or theft within the meaning of the Theft Act 1968, the Theft Act (Northern Ireland) 1969, the Theft Act 1978 or the Theft (Northern Ireland) Order 1978;
- fraudulent trading within the meaning of section 458 of the Companies Act 1985, article 451 of the Companies (Northern Ireland) Order 1986 or section 993 of the Companies Act 2006;
- fraudulent evasion within the meaning of section 170 of the Customs and Excise Management Act 1979 or section 72 of the Value Added Tax Act 1994;
- an offence in connection with taxation in the European Union within the meaning of section 71 of the Criminal Justice Act 1993;
- destroying, defacing or concealing of documents or procuring the execution of a valuable security within the meaning of section 20 of the Theft Act 1968 or section 19 of the Theft Act (Northern Ireland) 1969;
- fraud within the meaning of section 2, 3 or 4 of the Fraud Act 2006;
- the possession of articles for use in frauds within the meaning of section 6 of the Fraud Act 2006, or the making, adapting, supplying or offering to supply articles for use in frauds within the meaning of section 7 of that Act;

Terrorist offences or offences linked to terrorist activities

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

Any offence:

- listed in section 41 of the Counter Terrorism Act 2008;
- listed in schedule 2 to that Act where the court has determined that there is a terrorist connection;
- under sections 44 to 46 of the Serious Crime Act 2007 which relates to an offence covered by the previous two points;

Money laundering or terrorist financing

Money laundering within the meaning of sections 340(11) and 415 of the Proceeds of Crime Act 2002

An offence in connection with the proceeds of criminal conduct within the meaning of section 93A, 93B or 93C of the Criminal Justice Act 1988 or article 45, 46 or 47 of the Proceeds of Crime (Northern Ireland) Order 1996

Child labour and other forms of trafficking human beings

An offence under section 4 of the Asylum and Immigration (Treatment of Claimants etc.) Act 2004;

An offence under section 59A of the Sexual Offences Act 2003

An offence under section 71 of the Coroners and Justice Act 2009;

An offence in connection with the proceeds of drug trafficking within the meaning of section 49, 50 or 51 of the Drug Trafficking Act 1994

An offence under section 2 or section 4 of the Modern Slavery Act 2015

Non-payment of tax and security contributions

Breach of obligations relating to the payment of taxes or social security contributions that has been established by a judicial or administrative decision.



## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

Where any tax returns submitted on or after 1 October 2012 have been found to be incorrect as a result of:

- HMRC successfully challenging the potential supplier under the General Anti – Abuse Rule (GAAR) or the “Halifax” abuse principle; or
- a tax authority in a jurisdiction in which the potential supplier is established successfully challenging it under any tax rules or legislation that have an effect equivalent or similar to the GAAR or “Halifax” abuse principle;
- a failure to notify, or failure of an avoidance scheme which the supplier is or was involved in, under the Disclosure of Tax Avoidance Scheme rules (DOTAS) or any equivalent or similar regime in a jurisdiction in which the supplier is established

Other offences

Any other offence within the meaning of Article 57(1) of the Directive as defined by the law of any jurisdiction outside England, Wales and Northern Ireland

Any other offence within the meaning of Article 57(1) of the Directive created after 26th February 2015 in England, Wales or Northern Ireland

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

### Discretionary exclusions

Obligations in the field of environment, social and labour law.

Where an organisation has violated applicable obligations in the fields of environmental, social and labour law established by EU law (as retained in UK law in accordance with Section 4 of the EU Withdrawal Act 2018 (as amended by the EU (Withdrawal Agreement) Act 2020)), national law, collective agreements or by the international environmental, social and labour law provisions listed in Annex X to the Directive (see copy below) as amended from time to time; including the following:-

- Where the organisation or any of its Directors or Executive Officers has been in receipt of enforcement/remedial orders in relation to the Health and Safety Executive (or equivalent body) in the last 3 years.
- In the last three years, where the organisation has had a complaint upheld following an investigation by the Equality and Human Rights Commission or its predecessors (or a comparable body in any jurisdiction other than the UK), on grounds of alleged unlawful discrimination.
- In the last three years, where any finding of unlawful discrimination has been made against the organisation by an Employment Tribunal, an Employment Appeal Tribunal or any other court (or incomparable proceedings in any jurisdiction other than the UK).
- Where the organisation has been in breach of section 15 of the Immigration, Asylum, and Nationality Act 2006;
- Where the organisation has a conviction under section 21 of the Immigration, Asylum, and Nationality Act 2006;
- Where the organisation has been in breach of the National Minimum Wage Act 1998.

### **Bankruptcy, insolvency**

Bankrupt or is the subject of insolvency or winding-up proceedings, where the organisation's assets are being administered by a liquidator or by the court, where it is in an arrangement with creditors, where its business activities are suspended or it is in any analogous situation arising from a similar procedure under the laws and regulations of any State;

### **Grave professional misconduct**

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

Guilty of grave professional misconduct

### **Distortion of Competition**

Entered into agreements with other economic operators aimed at distorting Competition

### **Conflict of interest**

Aware of any conflict of interest within the meaning of regulation 24 due to the participation in the procurement procedure

Been involved in the preparation of the procurement procedure

### **Prior performance issues**

Shown significant or persistent deficiencies in the performance of a substantive requirement under a prior public contract, a prior contract with a contracting entity, or a prior concession contract, which led to early termination of that prior contract, damages or other comparable sanctions.

### **Misrepresentation and undue influence**

The organisation has influenced the decision-making process of the contracting authority to obtain confidential information that may confer upon the organisation undue advantages in the procurement procedure, or to negligently provided misleading information that may have a material influence on decisions concerning exclusion, selection, or award.

### Additional exclusion grounds

Breach of obligations relating to the payment of taxes or social security contributions.

ANNEX X Extract from Public Procurement Directive 2014/24/EU

### LIST OF INTERNATIONAL SOCIAL AND ENVIRONMENTAL CONVENTIONS REFERRED TO IN ARTICLE 18(2) —

- ILO Convention 87 on Freedom of Association and the Protection of the Right to Organise;
- ILO Convention 98 on the Right to Organise and Collective Bargaining;
- ILO Convention 29 on Forced Labour;
- ILO Convention 105 on the Abolition of Forced Labour;
- ILO Convention 138 on Minimum Age;
- ILO Convention 111 on Discrimination (Employment and Occupation);
- ILO Convention 100 on Equal Remuneration;
- ILO Convention 182 on Worst Forms of Child Labour;
- Vienna Convention for the protection of the Ozone Layer and its Montreal Protocol on substances that deplete the Ozone Layer;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention);
- Stockholm Convention on Persistent Organic Pollutants (Stockholm POPs Convention)
- Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (UNEP/FAO) (The PIC Convention) Rotterdam, 10 September 1998, and its 3 regional Protocols.

Consequences of misrepresentation

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

A serious misrepresentation which induces a contracting authority to enter into a contract may have the following consequences for the signatory that made the misrepresentation: -

- The potential supplier may be excluded from bidding for contracts for three years, under regulation 57(8)(h)(i) of the PCR 2015;
- The contracting authority may sue the supplier for damages and may rescind the contract under the Misrepresentation Act 1967.
- If fraud, or fraudulent intent, can be proved, the potential supplier or the responsible officers of the potential supplier may be prosecuted and convicted of the offence of fraud by false representation under s.2 of the Fraud Act 2006, which can carry a sentence of up to 10 years or a fine (or both).

If there is a conviction, then the company must be excluded from procurement for five years under reg. 57(1) of the PCR (subject to self-cleaning).

## Appendix 3 – Example Benefits Plan

Benefit Name	Description	Timeframe	Measure	Frequency of Measure	Baseline Project Start	Actual	Forecast Project Close	Target
Accelerate Commercialisation	To accelerate delivery of advanced product features. Suitable for sale at volume.	Over 3 years	Value of Sales £	Forms part of quarterly review At Project close 3 years after Project close	0	304,000	1,200,000	8,800,000
Reduction in Carbon Emissions	Reducing the carbon emissions of the product in order to meet revised Net Zero targets	Over 3 years	kT CO2e/yr	Forms part of quarterly review At Project close 3 years after Project close	1	5.3	13.5	29.7
Cost reduction of low carbon	Reducing the manufacturing costs to increase	Over 5 years	Reduction in cost £	Forms part of quarterly review At Project close 5	160	150	110	100

INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

technologies	consumer acceptability			years after Project close				
Increased knowledge stimulating further innovation	Agreed standardisation documents to provide guidance on the safe design of commercial appliances	At Project Close	Quality rating	Forms part of quarterly review  At Project close	N/A	N/A	N/A	N/A

# Appendix 4 – Completion of Cost Breakdown Form - Grant

## Overview

The BEIS Project Cost Breakdown Form – Grant ('the Form') is a standard template used to capture costs and overheads to inform multiple procurement competitions of varying size and scope. Applicants should carefully read the guidance contained within the Form before starting to complete.

## General

- Data should only be input into relevant light blue input cells
- Certain input cells have additional guidance on how to complete which appears in a yellow pop up when selecting the relevant input cell.
- All amounts must be entered in £s and exclusive of VAT

## Labour & Overhead Costs tab

- Other than the 50 days Applicants are asked to reserve for Independent delivery partner Support – see next bullet – Applicants should use relevant blue input tabs to capture all Project team members for whom the Applicant wishes to recover costs or overheads. Applicants must complete all light blue input cells (columns C,E,G,I and M) following the example format provided at Row 18.
- As detailed at **Sections 1.5.2** and **1.5.3**, Applicants are asked to assume that a total of 50 days will be utilised by its personnel to provide support to the independent delivery partners – 25 days at Phase 2 and 25 at Phase 3. Where Applicants believe that this support will be provided by personnel at different Day Rates (for example, 20 Days Engineer, 5 Days Senior Engineer) they should add in Additional input rows for the relevant Phase.
- Applicants should also provide a description of their method of calculating overheads in the input field at Rows 49-55.

Bidders should note that BEIS will not normally pay overheads of over 50%, and overheads above this amount will need to be fully justified.

## Travel and Subsistence tab

- As detailed at **Section 1.5.4**, Applicants are asked to include within the Travel and Subsistence tab the estimated Travel and Subsistence costs for 2 Project Team Members to travel to two anticipated Flexibility Innovation programme showcase events in London.



### Project Quarterly Breakdown tab

- Applicants should provide a quarterly profile for each Cost or Overhead category where £ amounts have been entered.
- Applicants should ensure that all totals in the 'Error Check' column - AI - are zero. Where totals are not zero this indicates that the totals entered on the relevant Row – for example, 'Total Labour costs' are different to those on the relevant Light Green input tab – Labour and Overhead Costs'.
- In line with relevant 'Notes on Completion' at the bottom of the 'Project Quarterly Breakdown tab' Applicants should ensure that<sup>24</sup>:
  - The 25 days of Labour Costs and overheads associated with support for the Independent Laboratory Testing Partner (Phase 2) are captured in the Quarter to Mar 24
  - The 25 days of Labour Costs and overheads associated with support for the Independent Real World Demonstrator Partner (Phase 3) are captured in the Quarter to Sept 24
  - Travel and Subsistence costs for the first anticipated Flexibility Innovation programme showcase event are included in the Quarter to Sept 23
  - Travel and Subsistence costs for the second anticipated Flexibility Innovation programme showcase event are included in the Quarter to June 24

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<sup>24</sup>All dates are tentative and subject to change.

## INTEROPERABLE DEMAND-SIDE RESPONSE – Stream 2

This publication is available from: [Flexibility Innovation Programme website](#).

If you need a version of this document in a more accessible format, please email [enquiries@beis.gov.uk](mailto:enquiries@beis.gov.uk). Please tell us what format you need. It will help us if you say what assistive technology you use.

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