



Department for
Business, Energy
& Industrial Strategy

Net Zero Innovation Portfolio

Longer Duration Energy Storage

Stream 1

Demonstrating innovation in longer duration
energy storage

GRANT COMPETITION GUIDANCE NOTES
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You can contact the BEIS Data Protection Officer at: BEIS Data Protection Officer, Department for Business, Energy and Industrial Strategy, 1 Victoria Street, London SW1H 0ET. Email: dataprotection@beis.gov.uk.

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Glossary of terms and definitions

BEIS	Department for Business Energy and Industrial Strategy
bn	billion
CAPEX	capital expenditure
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
EIR	Environmental Information Regulations (2004)
FAQs	frequently asked questions
FEED	Front-End Engineering Design
FOIA	Freedom of Information Act (2000)
GDP	gross domestic product
GDPR	General Data Protection Regulations
IPR	intellectual property rights
KPI	Key Performance Indicator
kT	kilo-tonnes
M	million
NZIP	Net Zero Innovation Portfolio
OPEX	operating expenditure
Power to X	an umbrella term referring to technologies which convert electricity into a fuel storage medium (e.g. hydrogen, ammonia, biomethane)
SME	small and medium enterprise
TCA	Trade & Cooperation Agreement
TRL	Technology Readiness Level
TWh	terawatt-hours

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T&C	terms and conditions
UK	United Kingdom
UKESTO	UK Energy Storage Observatory
WTO	World Trade Organization
VAT	Value-Added Tax
yr	year

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 & Industrial Strategy (BEIS).

Any reference to "Programme" is a reference to the Net Zero Innovation Portfolio: Longer Duration Energy Storage Demonstration 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).

Supporting Documents

The following documents support this Competition Guidance and are available within the application form and at the [competition website](#).

- 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: The UK General Data Protection Regulation Assurance Questionnaire for Contractors
 - Declaration 5: Consent for Information Sharing
 - Declaration 6: Modern Slavery Statement
- Annex 3: Technical data form
- Annex 4: Financial Model
- Annex 5: Project cost breakdown form

Longer Duration Energy Storage – Guidance for Applicants

The purpose of this Guidance is to give a comprehensive overview of the Longer Duration Energy Storage Grant Competition (the Competition) and associated procedures for participation in the Competition. For further information, please also refer to the Competition Frequently Asked Questions (FAQs) available [here](#).

1 Competition Overview

Background

The Longer Duration Energy Storage Demonstration Programme forms part of the Government's 10 Point Plan for a green industrial revolution, in which the Prime Minister committed £100m to address "Energy Storage and Flexibility Innovation Challenges" as part of the £1bn [Net Zero Innovation Portfolio](#) (NZIP). The NZIP is also outlined in the recent [Energy White Paper: Powering our Net-Zero Future](#).

The Programme will support the demonstration of innovative Longer Duration energy storage technologies which provide grid flexibility, through funding provided by the Department for Business, Energy and Industrial Strategy (BEIS).

Competition Structure

[The Programme](#) is a £68M funding opportunity for first-of-a-kind Longer Duration energy storage technologies, and will be delivered through 2 funding streams, each covering 3 technology categories (electricity, thermal, power-to-x) and encompassing 2 phases (preparatory phase and build & commission phase) (see Figure 1 below).

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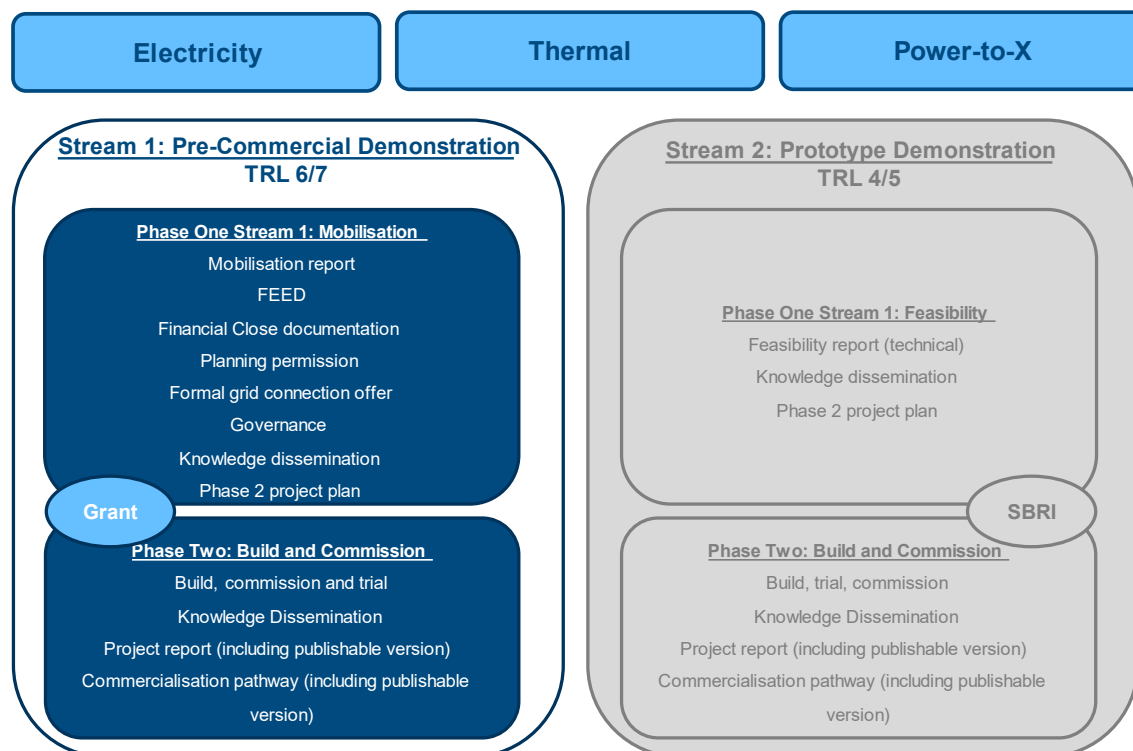


Figure 1: Overview of Competition streams and phases

The competition streams will be delivered through 2 different funding mechanisms (Stream 1: Grant competition, and Stream 2: Small Business Research Initiative competition) and target technologies at different maturity levels.

This Competition Guidance refers only to Stream 1 (Grants). For Guidance notes on Stream 2 (SBRI), please visit the [Competition website](#).

Purpose

This Grant Competition for Stream 1 (the Competition) is a £37.2M funding opportunity for a number of projects – initially ~9 before reducing down to ~3, to demonstrate first-of-a-kind longer duration (minimum 4 hours) energy storage facilities, using innovative storage technologies.

The aim of the Competition is to further accelerate commercialisation of innovative energy storage technologies. It will do this by focusing on technologies that provide longer duration storage capability and can provide novel services/system benefits.

The Competition will seek to achieve this aim by providing projects with grant funding towards capital expenditure (CAPEX). This support will enable first-of-a-kind demonstrators for technologies currently at technology readiness levels (TRLs) between 6 and 7.

The Competition will focus on increasing the TRLs of funded technologies by minimum 2 levels, resulting in:

- completion and qualification of the actual technology through testing and demonstration (increasing from TRL 6 to TRL 8 or above); or
- proving of the actual technology through successful operation (increasing from TRL 7 to TRL 9) (see **Appendix 1** for further information on TRLs).

Delivery Approach

The Competition will cover 3 key energy storage technology categories:

- electric,
- thermal, and
- power to x

The Competition has a focus on technologies that can provide flexibility services to the electricity grid. Minimum criteria (discussed in **Section 5 point 4**) have been set for all categories in order to capture this focus. Beyond this, the Competition seeks to facilitate additional revenue-generating opportunities for thermal and power-to-x, and projects are encouraged to consider these opportunities when making the commercial case for their technology.

Solutions which are currently commercially deployed in the UK or elsewhere will be out of scope of the Competition. These include, but are not limited to, conventional pumped hydropower storage and lithium-ion batteries.

The Competition will be delivered through two Phases:

Phase 1: Mobilisation phase (intending to fund ~9 projects, with ~3 from each technology category; subject to eligibility). In this phase, projects will be expected to mobilise their proposed technologies to prepare for potential deployment on the UK energy system. The mobilisation phase will include producing the deliverables shown in **Section 7.1**). This mobilisation phase will feed into Phase 2, where projects that receive Phase 2 funding will deliver their actual technology demonstrators (see **Section 8** for an overview of progression into Phase 2).

Phase 2: Build and demonstration of the technology (intending to fund ~3 projects, 1 from each technology category; subject to eligibility). Projects which receive Phase 2 funding will be expected to build a grid connected full-system demonstrator of their proposed technology with an off-taker agreement, and complete and qualify it through testing, incorporating the system into a commercial design (TRL 8) or proving the technology through successful operations, with the system ready for commercial deployment (TRL 9) (see **Section 7.2**).

A formal stage gate review will take place between Phase 1 and Phase 2 of the Competition. This review will determine which projects can progress to Phase 2. This will be encapsulated in a Grant Continuation Letter in the Grant Agreement between BEIS and successful projects. Please see **Annex 1** for the indicative terms of the Grant Funding Agreement.

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To summarise, the £37.2M funding intends to provide CAPEX support to deliver ~3 first-of-a-kind longer duration storage facilities. These facilities would be operated, maintained and decommissioned by the project teams or their end users. Operating expenditure (OPEX) and patent costs are out of scope of this Grant.

2 Competition Context, Outputs and Objectives

2.1 Context

This Competition forms part of the NZIP Energy Storage and Flexibility innovation challenge.

The Energy Storage and Flexibility innovation challenge, included in the [Prime Minister's Ten Point Plan for a Green Industrial Revolution](#), amounts to at least £100m, and is one of ten key priority areas, within the [BEIS £1bn+ Net Zero Innovation Portfolio](#).

The NZIP aims to “accelerate the commercialisation of innovative low-carbon technologies, systems and processes in power, buildings and industry” (Energy White Paper, 2020). It follows on from the BEIS [Energy Innovation Programme](#), which is delivering significant advances in low carbon technologies, including the world’s largest liquid air energy storage plant at Manchester.

As trailed in the [Energy White Paper](#), the competition is intended to accelerate commercialisation of innovative longer duration energy storage projects (i.e. excluding commercial solutions such as pumped hydro/lithium ion) at different technology readiness levels, through first-of-a-kind (FOAK) full-system prototypes or actual demonstrations.

Why energy storage?

The UK energy system is connecting increasingly high volumes of low carbon and renewable generation. A net zero energy system will need significant levels of flexibility to integrate these volumes of low carbon power, heat and transport. This flexibility will primarily come from storage, demand side response and interconnection to other countries – and could deliver savings of up to £6-12bn by 2050¹. The domestic market for smart systems and flexibility could contribute up to £1.3 bn to the UK’s gross domestic product (GDP), as well as up to 10,000 jobs. In addition, export opportunities for smart systems and flexibility produces and services could be worth up to £2.7bn and 14,000 jobs².

Energy storage is expected to be one of the key components in a smarter, more flexible energy system. Storage technologies can maximise the use of intermittent and distributed renewable generation, by storing and discharging energy when demanded by consumers, further displacing carbon intensive generation. They can also provide essential balancing services, providing system stability and mitigating network constraints by relieving congestion on the grid. Storage assets can also defer or avoid the need for costly network reinforcement to secure a lower-cost, low carbon and secure energy system for the future.

¹ Modelling 2050: Electricity System Analysis (2020) <https://www.gov.uk/government/publications/modelling-2050-electricity-system-analysis>. Note that this analysis only include intra-day storage.

² BEIS, Energy Innovation Needs Assessment (2019), <https://www.gov.uk/government/publications/energy-innovation-needs-assessments>

Why longer duration storage?

Longer duration energy storage technologies could help reduce the cost of meeting the UK's net zero targets by storing excess energy from low-carbon generation for longer periods of time, helping to manage variation in renewable energy generation, such as extended periods of low wind. This could reduce the amount of back-up fossil fuel capacity and dispatchable low-carbon generation (carbon capture and storage) that would otherwise be needed to meet demand, as well as avoid the cost of curtailing renewable energy in periods of excess supply. Alternatively, it could displace carbon-intensive energy consumption by providing low-carbon heat or energy carriers. In 2020, the UK curtailed its wind energy generation on 75% of days, amounting to over 3.6 terawatt-hours (TWh) of curtailed generation which could have been stored and subsequently delivered back to the grid or supplied directly to consumers.³

Why the need for innovation?

Lithium-ion batteries, which are increasingly being deployed in the energy storage market, are unlikely to be cost-competitive for longer durations. The only mature solution for longer duration energy storage is conventional pumped hydropower storage, of which there are already 3 GW connected to the UK energy system. There is a need for new technologies that can provide longer duration storage, including utilising excess electricity generation. These technologies might either return electricity to the grid at a later time or use it in other sectors such as domestic and industrial heating, or to produce energy carriers such as hydrogen.

Many of the technologies in the longer duration storage space are first-of-a-kind technologies that are not yet commercial or have not been demonstrated at scale before, and there is significant potential for innovation. UK companies have developed innovative, large-scale, longer duration energy storage solutions which could provide flexibility to the energy system.

These innovative technologies, which have not yet been deployed commercially or demonstrated at scale have the potential for significant cost reductions or displacement of carbon-intensive consumption.

2.2 Competition Objectives

This Competition is focused on pre-commercial demonstrator proposals for electrical storage, thermal storage and power-to-x technologies which can provide novel grid services and demonstrate cost reductions and improvement in technology performance. Technologies in scope would need to not be commercially deployed (in the UK or elsewhere) and would need to be at a TRL of 6 or 7.

We expect all technologies in scope to be able to demonstrate the ability to charge utilising electricity, in view of delivering key flexibility services to the UK power grid. However, BEIS welcomes applications from projects which, in addition to demonstrating flexibility services,

³ Lane, Clark and Peacock, 2020. "Is battery storage a good investment opportunity?" <https://www.lcp.uk.com/energy/publications/is-battery-storage-a-good-investment-opportunity/>

have other applications, for example the production of hydrogen as a transportation fuel. Specifically on hydrogen, we would draw potential applicants' attention to the separate £60m funding stream on Hydrogen Supply⁴.

Each application must specify which single technology category the project falls within (electrical storage, thermal storage or power-to-x). Any technology that discharges the majority of its energy as electricity should apply to the electrical category, any technology that discharges the majority of its energy as heat should apply to the thermal category and as technology that discharges the majority of its energy as an energy carrier should apply to power-x.

For technologies excluded from this Competition, please see **Section 5.1**.

The detailed technical deliverables will be different for each project, but all will be expected to contribute to the following Competition objectives:

- Explore the potential for cost reductions of longer duration storage technologies;
- De-risk effective non-conventional storage technologies and therefore
- Secure buy-in from commercial investors;
- Demonstrate capability, securing data to inform policy formulation;
- Build a pipeline of storage technologies in the UK, supporting expertise and export opportunities.

2.3 Project Scope

All technologies must demonstrate the ability to store energy in a compact form without significant energy loss for periods of time sufficient to mitigate against the non-dispatchability of renewable generation technologies, before utilising the stored energy to undertake useful work as heat, electricity, or to displace an alternative carbon-intensive energy carrier.

All technologies must demonstrate flexibility services for the grid, and thus must demonstrate the ability to charge using electricity. We welcome technologies which are able to offer additional services to other sectors.

Lead organisations must be UK-registered to be eligible for funding. This is discussed further in the eligibility requirements in section 5.1.

The technology demonstrator must be for the UK energy system and thus meet the needs of the UK energy system. The demonstration itself must take place in the UK. This does not preclude elements of the project from being conducted outside the UK or part of project costs

⁴ More information available here: <https://www.gov.uk/government/publications/low-carbon-hydrogen-supply-2-competition>

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being spent outside of the UK; however, this would need to be justified in the application. Projects can be located anywhere in the UK.

Given the potential for longer duration storage to alleviate grid congestion, we are interested in proposals for siting storage facilities at points of transmission or distribution network constraint. We are also interested in proposals for facilities co-located with electricity sources and sinks, facilitating integration of longer duration energy storage into the wider electricity system.

Competition Exclusion - Gas Grid Blending

Projects proposing blending hydrogen into the gas grid are excluded from the Competition. However, the Competition will consider project proposals where hydrogen and natural gas or biogas are blended together in a standalone storage system, which is isolated from the natural gas grid. Such technologies must demonstrate a clear carbon emissions saving and outline a clear route to phasing out the blending of natural gas in their proposed design.

3 Competition Timetable, Application and Assessment Process

The Competition funding will be awarded using the Grant funding approach.

This Competition consists of two phases: Phase 1, **running from November 2021 until November 2022**; and Phase 2, running from **December 2022 until March 2025**.

3.1 Competition Timetable

3.1.1 Phase 1

Phase 1 is a mobilisation phase, where projects are required to put in place the technical, legal, financial and commercial measures for delivery of Phase 2, where they will build and demonstrate their technology fully.

Indicative key dates applicable to Phase 1 of the Competition are shown in **Figure 2**.

Please note BEIS reserves the right to vary these dates.

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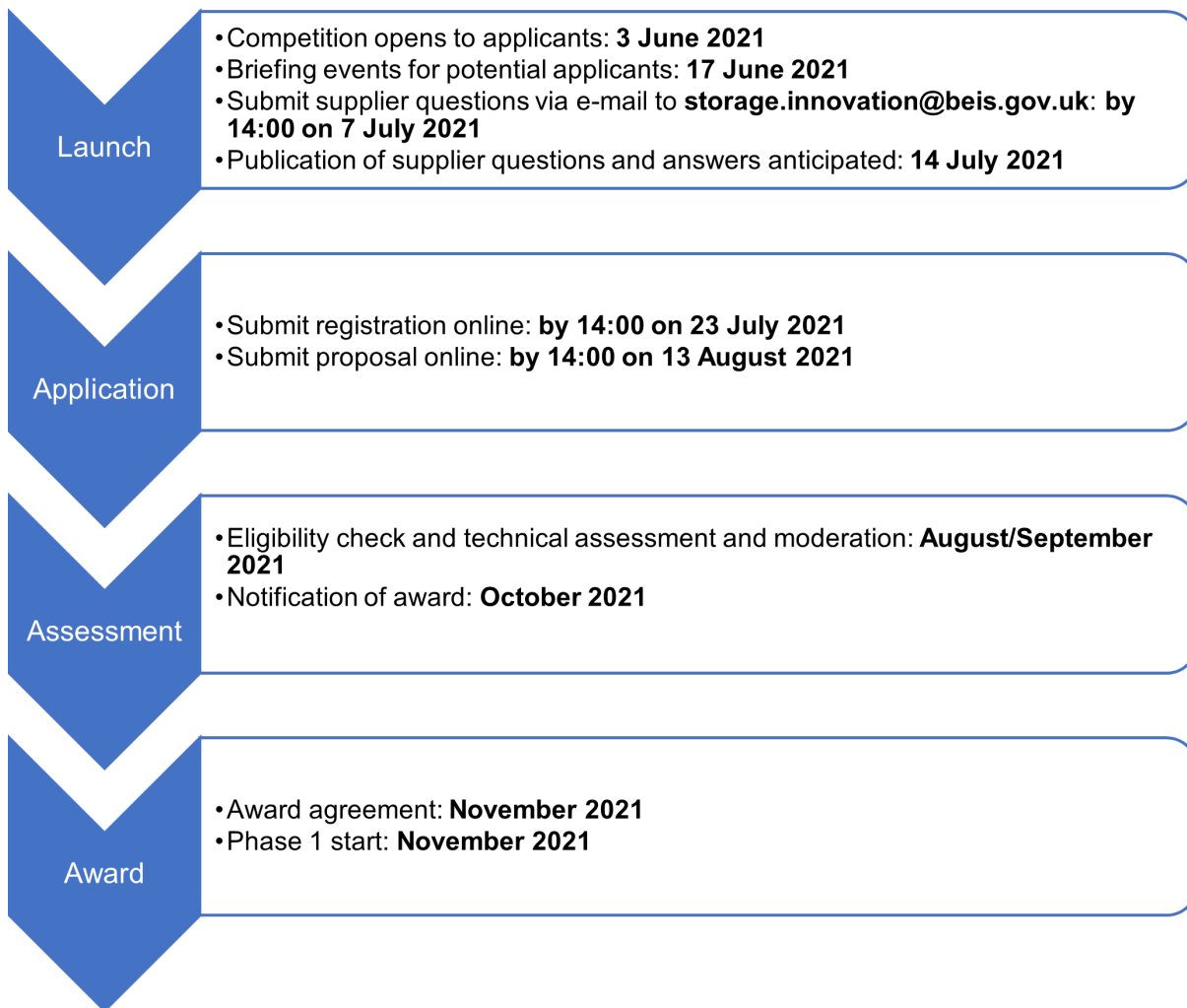


Figure 1: Phase 1 timeline

Phase 1 is planned for November 2021 to October/November 2022. The main deliverables of Phase 1 are detailed in **Section 7.1**.

3.1.2 Phase 2

The indicative process for progression from Phase 1 into Phase 2 is outlined in **Section 8**. Under current planning assumptions, Phase 2 will begin in December 2022. The main deliverables of Phase 2 are detailed in **Section 7.2**.

Indicative key dates for Phase 2 of Stream 1 are shown in Figure 3.

Please note BEIS reserves the right to vary these dates.

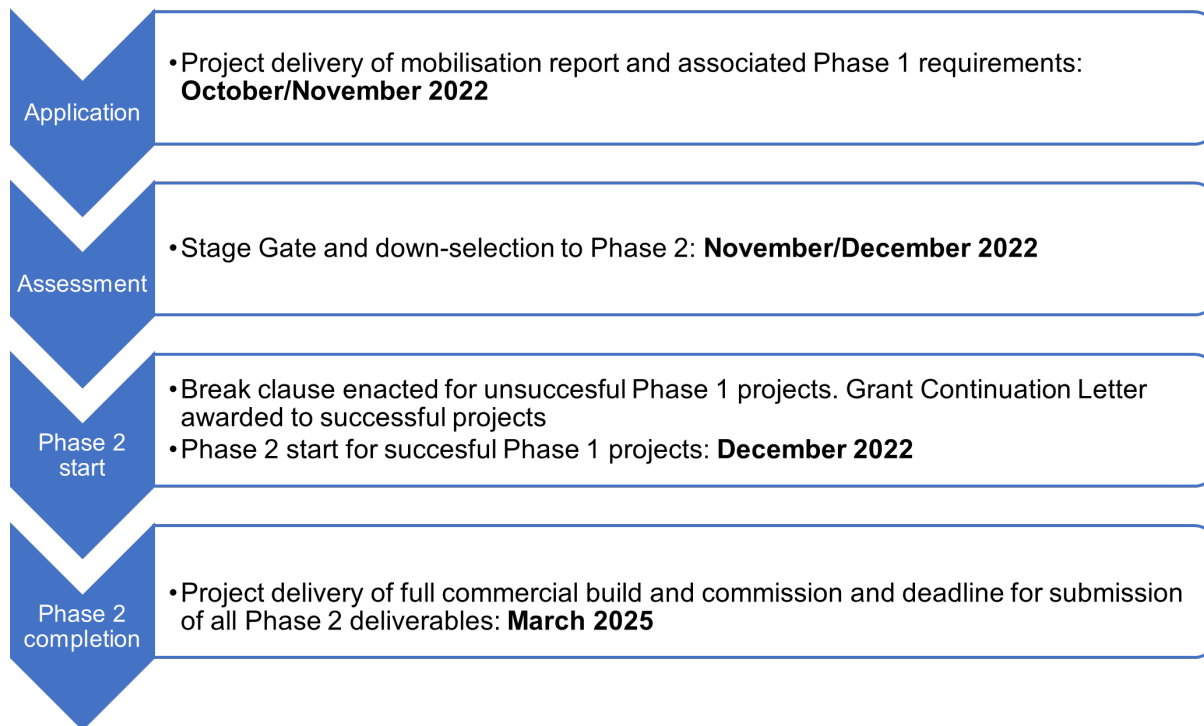


Figure 2: Phase 2 timeline

3.2 Stage 1: Application

To apply to Phase 1, bidders will be asked to complete an online Registration Form, following which a unique password will be provided. This will be required in order to access and complete the Competition application form. An offline copy of the application form is available [here](#) for reference only. Please note that registration is required to view either the offline or online version of the application form.

On receipt of the unique password, bidders can then complete the online application form and submit supporting information outlining their proposal. **Please note:** applications will be assessed on their potential to deliver both Phase 1 and Phase 2. Applicants are not required to submit detailed information on their Phase 2 plans at this stage; however, they will be asked for outline project plans and budgets for Phase 2, at a minimum.

- **Registration Form.** The Registration Form is available [here](#). The deadline for submitting registration forms is **23 July 2021**.
- **BEIS Confirmation.** Upon completion of the Registration Form, BEIS will issue a confirmation e-mail to the applicant, with a password to log into the online application system and submit a subsequent application.
- **Questions.** We aim to provide comprehensive guidance through this documentation and online Frequently Asked Questions (FAQs) available [here](#). If you still have questions, please submit them by the final clarification questions deadline (**14:00 7 July 2021**) to storage.innovation@beis.gov.uk; questions submitted after this deadline may not be answered. We expect to publish replies to any questions which, in our

judgement, are of material significance, through an online anonymised FAQ sheet [here](#), on or before **14 July 2021**. All bidders should consider the answers to the clarification questions, the online FAQs and this Competition Guidance when preparing their own bids. BEIS will evaluate bids on the assumption that they have done so.

- Submission of Proposal. The full proposal must be submitted online by **14:00 13 August 2021**. **Bidders must apply to a specific technology category (electrical, thermal, power-to-X)**. Any supporting materials must be attached to the online proposal form. Please note that each supporting document cannot exceed the size limit set within the application form.
- How to submit your proposal. Once you have your password, you can go to the online application platform [here](#) and start your application.
 - **Please make sure you have read this guidance before starting your application.**
 - You can save your application at any time by clicking “Save and Continue Later”. You will then be e-mailed a link which you can use to return to your application and complete it, logging in with the same password.
 - You may also find it useful to review the offline application form (available [here](#) once registered). 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.
 - If you have any enquiries regarding your online application, please contact storage.innovation@beis.gov.uk.
- **Submission Content**. Each proposal must include the following:
 - Completed application form (online)
 - Signed declaration form agreeing to the terms of the Competition application process (Form of Bid), [**downloadable through the online application form; applicants must sign and re-upload to their application**].
 - Signed consent form, statement of non-collusion, conflict of interests, GDPR and modern slavery statements, [**downloadable through the online application form; applicants must sign and re-upload to their application**].

- Completed Phase 1 Project Cost Breakdown Form, **[downloadable through the online application form; applicants must sign and re-upload to their application]**.
- Completed Phase 1 project plan, e.g. detailed project Gantt chart and description of work packages, **[to be attached by applicant to their online application]**.
- Completed Technical Data Form, an Excel spreadsheet of technical parameters of your technology (see **Section 6.1**, criterion 1b). If you have previously demonstrated the same technology under government funding, you will also need to provide the technical parameters achieved previously **[downloadable through the online application form; applicants must complete and re-upload to their application]**.
- Business plan, or similar, and completion of financial model template for the proposed technology **[to be attached by applicant to their online application]**.
- Outline Phase 2 budget **[to be attached by applicant to their online application]**
- Outline Phase 2 project plan, e.g. high-level project Gantt chart and summary overview 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 proposal⁵ **[downloadable through the online application form; applicants must complete and re-upload to their application]**.
- Complete audited financial accounts covering the past 3 years of activity and/or letters of support from project partners **[to be attached by applicant to their online application]**. Where a new start-up is applying, they should provide a statement explaining how they will finance the project.
- **Optional**: supporting information can also be submitted where they add substantive information to the proposal; however, you should not assume that any additional information will be cross-referenced or reviewed as part of the selection process. For example, it may only be used to help finalise the assessment of projects which receive very similar assessment scores. The application should include a list of any supporting documents.

Any supporting materials must be attached to the online proposal form. Please note that attached materials **cannot exceed 10 Mb in size per attachment**.

⁵ 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)

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.

Any applications or supporting documentation received after the application deadline will not be considered.

- **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). Consortia must have a defined lead applicant with the responsibilities outlined in **Section 3.4**.
- 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 provided by BEIS until a signed consortium agreement has been finalised between all the members of the project consortium. 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. Bidders should therefore respond in the light of the arrangements as currently envisaged and are reminded that any future proposed changes in relation to consortia and sub-contractors must be submitted to BEIS for approval
- **Multiple Bids.** Applicants may put in multiple bids or be part of multiple consortia, for unique projects delivering different energy storage technologies. Any applicant involved in multiple projects will have to demonstrate ability to deliver multiple projects simultaneously, noting the requirements in **Section 3.4**.
- **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 Stage 2: 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 are described in **Section 6 and Section 8** for Phase 1 and Phase 2 respectively.

3.4 Stage 3: Grant Award

Phase 1 grant agreements are expected to be signed in **November/December 2021**. These grant agreements will cover both Phases and will include a process to reflect the stage gate down-selection process, following which only a subset of projects will progress from Phase 1 to Phase 2. The projects which are selected to progress will be awarded a Grant Continuation Letter to confirm their progression into Phase 2. Phase 2 is expected to commence in **December 2022**.

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**.

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. For consortium projects, 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; 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 sub-contractors/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.

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 grant stream is up to £37.2M, 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 £7.2M will be available for Phase 1, with a maximum expected grant value of £1M per project. We intend to fund ~9 projects in Phase 1; the actual number of Phase 1 projects funded depends on the range of technologies 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 within their technology category and allocated funding accordingly. If budget is available after the initial award, additional projects may be funded in line with the process described in **Section 6.3**.

We have currently allotted £30M to Phase 2. The maximum expected funding available per project is £11M. We intend to fund ~3 projects in Phase 2; the actual number of projects funded depends on the range of technologies proposed, the number of eligible projects, and the number of projects that are affordable within the allocated budget. If budget is available after the initial awards, additional projects may be funded in line with the process outlined in **Section 8.3**.

Further details on the funding allocation approach are available in **Section 6** (Phase 1) and **section 8** (Phase 2).

A single project can receive up to the maximum grant intensity as shown in **Table 1** in **Section 4.2**.

Grant funding under the Competition is **only available until March 2025**. All project activities related to the build, including dissemination, reporting and payments, need to be completed by this date. Match funding can be retained to deliver the operational piloting, testing and validation (and related dissemination, reporting and payments) if these activities occur after **March 2025**.

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 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 or 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 Competition will fund experimental development as defined below and outlined below.

Experimental Development means “acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aiming at the conceptual definition, planning and documentation of new products, processes or services. Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real life operating conditions where the primary objective is to make further technical improvements on products, processes or services that are not substantially set. This may include the development of a commercially usable prototype or pilot which is necessarily the final commercial product and which is too expensive to produce for it to be used only for demonstration and validation purposes. Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements”.

The funding levels applied for each project must be consistent with the grant intensity levels summarised in Table 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.

Research Category	Type & size of applicant	Maximum amount of funding towards eligible Project Costs
<p>Experimental Development - 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)</p> <p>Note: Certain conditions must be fulfilled for collaboration and for dissemination (see section 4.4 below)</p>	Small enterprise	60%
	Medium enterprise	50%
	Large enterprise	40%
<p>Experimental Development – Universities or Research Organisations</p>	<p>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.</p>	

Table 1: Maximum grant funding amounts

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.

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 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)⁶;

4.5 Collaboration and Knowledge Dissemination

Under this Competition, the funding levels indicated in Table 1 may be awarded to participants as long as they meet one of the following conditions:

“(i) the project involves effective collaboration:

- between undertakings among which at least one is an SME, and no single undertaking bears more than 70% of the eligible costs, or
- between an undertaking and one or more research and knowledge-dissemination organisations, where the latter bear at least 10% of the eligible costs and have the right to publish their own research results;

Or:

(ii) 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

In Phase 1, eligible costs (those directly associated with preparation of the mobilisation report, knowledge dissemination activities and other activities such as securing planning permission and producing FEED) will be considered. However, an indication of the potential costs involved in participating in Phase 2 is also required when bidding for Phase 1.

In Phase 2, eligible costs are those directly associated with the development and implementation of the Longer Duration Energy Storage demonstrators and knowledge dissemination activities.

Further details of eligible and ineligible costs are provided in **Section 5** of the Grant Funding Agreement provided in **Annex 1**. Applicants must complete the Project Cost Breakdown Form (attached in the online application form, see **Section 3.1.3**) 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.

⁶ Guidance - [Complying with the UK’s international obligations on subsidy control](#): guidance for public authorities, on gov.uk.

4.7 Operating, Maintenance and Decommissioning Costs

The longer duration storage demonstrators developed under this Competition will be operated, maintained and decommissioned by the project teams and/or their end users.

Operation, maintenance and further development costs for the developed demonstrators are out of the scope of this Competition. When bidding, bidders should include estimated operation and maintenance costs for their prototype.

Where the Longer Duration Energy Storage solution includes a physical asset, the chosen bidders will have responsibility for costs and risk of either continuing to operate or decommissioning demonstration equipment when the Grant funded project has been completed. When bidding for Phase 1, bidders need to include any decommissioning costs, at fair market value, in the estimated costs for the Phase 2 project.

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

5 Eligibility for Funding (Phase 1)

5.1 Competition Eligibility Criteria

To be eligible for funding under Phase 1, 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.

1. Lead organisation registration

To lead a project consortia or work alone your organisation must:

- be a business of any size, a research organisation or a research and technology organisation (RTO) with a base in the UK
- intend to exploit the results from or in the UK

If the lead organisation is an RTO or a research organisation it must collaborate with at least 1 business. Academic institutions cannot work alone or act as lead applicant.

2. Relevance to the UK energy system

The objective of this programme is to develop technologies which can operate in and support the UK energy system. As such, the Phase 1 preparatory work must cover the UK, and the Phase 2 demonstrator must benefit the UK energy system.

3. Innovation and Technology Readiness

The main deliverable is operational demonstrators of longer duration energy storage projects. Projects are thus expected to support pre-commercial development and demonstration activity for storage technologies between TRL 6-7 at the beginning of the competition. A description of Technology Readiness Levels is provided in **Appendix 1**. The Competition cannot support commercial activity.

4. Technology Scope

The Competition is interested in a broad range of longer duration energy storage technologies, capable of providing flexibility to the UK electricity grid.

All technologies must demonstrate the ability to store energy in a compact form without significant energy loss for periods of time sufficient to mitigate against the non-dispatchability of renewable generation technologies, before utilising the stored energy to undertake useful work as heat, electricity, or to displace an alternative carbon-intensive energy carrier.

The minimum requirements for eligibility are as follows:

- Must charge using electricity.

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- Must be able to charge for at least 4 hours.
- Demonstrate the ability to remain charged for a period no less than 4 hours, without significant self-discharge, before utilising the stored energy, either as heat, electricity, or to displace an alternative carbon-intensive energy carrier.
- Must have the flexibility to increase electricity demand at times of low demand and high renewable output.
- Must be stationary – i.e. operate from 1 primary location.

The Competition will support proposals that can demonstrate and trial innovative longer duration static energy storage products, within the following technology categories:

- Electrical energy storage
- Thermal energy storage
- Power-to-x

Each application must specify which single technology category the project falls within (electrical storage, thermal storage or power-to-x). The technologies considered for this Competition should be directly applicable to the UK energy system.

BEIS reserves the right to reallocate technologies to a different category where appropriate. This reallocation will be conducted following BEIS' initial eligibility check and applicants will be notified prior to commencement of technical assessment. This is during the 'Assessment' stage shown in **Figure 2 of Section 3.1.1**.

Exclusions: Funding will not be provided for:

- Technologies which are already **commercially or widely deployed for longer durations** (i.e. beyond TRL 9) in the UK or elsewhere (e.g. lithium-ion batteries or conventional pumped hydropower storage).
- The demonstration and trialling of technologies which have previously received public funding and are being **re-proposed at a smaller or equal scale as previously funded**.

5. Project activity

BEIS cannot provide funding for retrospective work on projects or provide funding to projects which have already began.

This Competition is unable to fund experimental research. To be eligible for funding, the project activity must be **experimental development, as defined in Section 4.2**.

If project consortium members or subcontractors are part of multiple successful bids, 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.

6. Project status and timescale

Target dates for key project milestones (e.g. start of build, start of operational trialling) will be agreed between the successful bidder and BEIS prior to awarding the grant offer. Awarded grant funding cannot fund retrospective work.

Phase 1 should aim to be completed and approved by BEIS in line with the Grant Funding Agreement terms in Annex 1 by October/November 2022. All project work related to Phase 2 (the build, including operational piloting, testing and validating and final project reports) must be completed by March 2025.

As stated above, projects accepted for funding for Phase 1 will not automatically progress into Phase 2. However, BEIS will assess projects' capacity to deliver both Phases, in the initial application.

7. 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.

It should be noted that we expect you to be able to estimate the internal rate of return (IRR) of your entire project with and without public funding. This will be required as part of **Assessment Criterion 5 (Project financing) (see Section 6)**.

8. Grant size

Funding will be awarded in two phases:

Phase 1 - Mobilisation. The indicative maximum grant size per project is £1M. The approach to funding will be as described in **Section 4.1**.

Phase 2 – Demonstration. The indicative maximum funding available per project will be £11M. The approach to funding will be as described in **Section 4.1**.

9. Grant intensity (match funding)

The grant funding levels applied for must be consistent with the relevant grant intensity levels (including consideration of the cumulative effect of other forms of subsidies).

A project can receive up to the maximum grant intensity (including public funding from other sources) as defined in **Section 4.2. Table 1** sets out the maximum grant intensity limits but applicants should be aware that grant awards may be lower than the maximum limit.

Projects must not be in receipt of other government funding which would take them above allowable grant intensity levels⁷.

10. Eligible project costs

The project costs must be eligible for funding. See **Annex 1, section 5** for a list of eligible project costs.

11. Applicants and project team composition

Phases 1 and 2 are expected to be delivered by a single company or by a consortium, in line with the requirements of Eligibility Criterion 1.

Members of the project team can be:

- Private sector companies: both SMEs and large enterprises can apply as sole applicants or 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, public, third sector or community organisations must work as part of a project consortium with private sector organisations – they cannot be sole or lead applicants to this competition.

At the time of application, projects must have engaged with a grid partner (e.g., attend a grid connection surgery with a distribution network operator (DNO)) and have engaged with an off-taker.

Applicants (sole applicants and lead project members of consortium bids) must be able to demonstrate that they are financially viable. 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.

5.2 General BEIS Conditions

Appendix 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 exclusions.

⁷ 40% of eligible costs for large enterprises, 50% for medium enterprises, 60% for small enterprises. Universities or 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. Further detail is provided in **Section 4.2**.

There are six declaration forms which must be completed by each applicant (see Annex 2):

- Declaration 1: Statement of non-collusion
- Declaration 2: Form of Bid
- Declaration 3: Conflict of Interest
- Declaration 4: The UK General Data Protection Regulation Assurance Questionnaire for Contractors
- Declaration 5: Consent for Information Sharing
- Declaration 6: Modern Slavery Statement

These declarations are provided in the online application form and can also be downloaded from the [Competition website](#). All declarations must be signed and uploaded to the online application form by the applicant.

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 consortium or organisation 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.

The process by which this 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.

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- 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 10.2**. The Longer Duration Energy Storage programme board will make a decision as to the eligibility of projects based on the results of these checks.

6 Assessment Process and Criteria (Phase 1)

All applications will be considered initially against the Competition eligibility criteria (described in **Section 5**). Eligible projects will be further assessed against a number of assessment criteria by a **minimum of 3 reviewers**, which may include external reviewers⁸.

Project scores will then be moderated to determine a ranking list within each technology category that will be used to allocate the funding. To be eligible to receive funding, a project must achieve a moderated score of at least 2 out of 5 against each criterion, with a minimum total weighted score of 60%. If budget is available after the initial award, additional projects may be funded in line with the process described in **Section 6.3**.

The application form and these Guidance Notes are designed to inform you about the types of information you should be prepared to provide to BEIS in your online application. The individual questions listed under the assessment criterion headings in **Section 6.1** are not assessment sub-criteria but are an indication of the factors considered when assessing each proposal.

6.1 Assessment Criteria

The assessment criteria for Phase 1 are broken down into 6 separate criteria. Each criterion will be scored independently and will be given a scoring between 1 and 5. The scoring guidance is summarised in **Section 6.2** below.

Criterion 1	Innovative technology demonstration, performance improvement and cost reduction
Weighting	20% (split into sections a – 10% and b – 10%)
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Explain how their proposed technology is innovative and to what extent it is technically feasible. Describe the performance of the technology compared to other longer duration energy storage technologies • Describe the performance improvements and cost reductions intended to be achieved through Phase 2

⁸ All external reviewers will have signed up to adhering to strict conflicts of interest terms.

Criterion 1a	Description of novel technology and technical feasibility of technology
Weighting	10%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Describe how their technology is novel and how it will support achievement of the Competition objectives, including the following details: • The innovative technology/technologies included in their proposed approach. • Whether any similar technologies exist, and how their proposed approach is different. • How their technology addresses conventional storage issues, such as duration, sustainability, health and safety issues and geographical constraints. • Describe the potential technical challenges and barriers of the proposed technology (e.g. geographical/proximity constraints or infrastructure requirements⁹) and how these will be addressed. • Describe the potential regulatory barriers and challenges and how the technology will meet required regulatory conditions, including identifying and addressing safety and sustainability concerns (e.g. hazardous materials). • Describe the technology readiness level (TRL) of your proposed storage system at the start of the project, and expected TRL at the end of Phase 2 (March 2025) of the project.
Criterion 1b	Performance of innovative storage technology
Weighting	10%
Guidance	<p>At a minimum, applicants are expected to:</p> <ul style="list-style-type: none"> • Provide evidence to demonstrate the performance of your proposed technology, providing justifications for all technical data provided. We will ask you to fill out a Technical Data Form, providing data on a number of relevant parameters.

⁹ For example, does the storage system need to be in a climate-controlled environment?

	<p>See Annex 3 for the Technical Data Form. This form will be part of the online application form¹⁰.</p> <ul style="list-style-type: none"> • Please note: if your proposed technology has previously been demonstrated under public funding, please also provide the relevant technical parameters for the previous demonstration. Funding is not available for any technologies that have previously received public funding and are being re-proposed at the same scale as previously funded. Provide evidence to demonstrate the cost reduction potential of your proposed technology: capital cost of storage per unit energy stored and lifetime of technology. • Compare the performance of their technology with other technologies with a comparable output (i.e. electricity, heat or energy carrier). • Describe how the performance of the technology will be further validated through the mobilisation report and demonstration phases. • Describe how the mobilisation phase (Phase 1) will firm up costs for the Phase 2 technology. • Describe how the mobilisation phase (Phase 1) will provide a better understanding of the challenges and barriers to deployment of your technology.
Scoring	High scoring applications will demonstrate a robust and competitive cost of storage, taking into account performance and lifecycle cost information and other technology benefits, including expected innovation, in line with the scoring guidance in Section 6.2 .

Criterion 2	Energy system and wider benefits secured by technology
Weighting	15%
Guidance	<p>Applicants are expected to describe:</p> <ul style="list-style-type: none"> • The potential to contribute to increased security and reliability of the electricity grid • The potential for mitigation of carbon dioxide in either the electricity grid or the wider energy sector as a result of deploying their technology.

¹⁰ You will need to download the Technical Data Form from the application form, complete it and re-upload it, as detailed in Section 1.3 – Submission Content.

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	<ul style="list-style-type: none"> • The potential for securing cost-effective efficiency improvements in generation technologies (renewable or non-renewable) or demand management. • The potential for providing key services to address Capacity Market stress events. • Address the market potential/replicability of the technology across the UK. • Detail if and how their technology provides benefits outside of the electricity sector.
Scoring	High scoring applications will demonstrate the best potential to achieve energy system benefits and/or the potential impact on greenhouse gas emissions in the UK, in line with the scoring guidance in Section 6.2 .

Criterion 3	Market potential for product
Weighting	15%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Identify and quantify the expected markets and market share for the technology over the next 5 years • Identify the revenue streams which they expect to finance their proposed technology following the end of grant funding. • Produce a financial model utilising the template provided in Annex 4. • Describe the scalability of the technology and applicability across different energy storage use cases. • Given the current market, identify when such a technology could be widely deployed. • Identify any future development required to facilitate widespread commercialisation. • Identify required supply chains and key supply chain gaps. • Set out proposed routes for further commercialisation and exploitation of the product in new markets • Describe long term plans for development, commercialisation, exploitation of their technology and how this contributes to HMG’s legal target to achieve Net Zero by 2050.

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	<ul style="list-style-type: none"> • Appraise existing commercial challenges, benefits, and risks of the technology. • Present a plan for addressing the challenges and exploiting the benefits associated with the technology, such that the development plan moves the technology towards commercialisation.
Scoring	High scoring applications will have robust plans for further commercialisation and exploitation of the proposed longer duration energy storage technology, strong potential market uptake opportunities, and innovative and robust proposed business plans and financial models, with strong evidence underlying their assumptions, in line with the scoring guidance in Section 6.2 .

Criterion 4	Project delivery (split into sections a – 10% and b – 10%)
Weighting	20%
Guidance	<p>This criterion will be used to assess the deliverability of the mobilisation report; and will also consider the indicative plan, and the project team’s potential capacity and capability to deliver an actual demonstration in the time available. This will be assessed by looking at a range of factors, including:</p> <ul style="list-style-type: none"> • The capacity, experience, and capability of the project team to deliver both Phases of the competition. • The completeness and quality of the proposed project delivery plans and project resources, both for the mobilisation report and for the proposed demonstration project • The deliverability of the project milestones and deliverables, including plans to detail and finalise the delivery plan for Phase 2; • The project’s access to the necessary skills, facilities, and materials. • The quality of risk assessment and contingency planning, including consideration of health and safety, cybersecurity and other regulatory requirements. • The robustness of consortium governance processes (where relevant), including the fairness and robustness of proposed sub-contractor relationships and capability of lead partner to govern relationships.

	<ul style="list-style-type: none"> The capacity and capability of the project team to comply with monitoring and reporting requirements, including submission of formal quarterly reports and arranging quarterly site visits for the BEIS programme team (Covid-19 dependent).
Criterion 4a	Project team and organisation
Weighting	10%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> Provide a clear and detailed organogram and high level resource plan for the lead applicant Outline the key roles for each partner and/or subcontractor and the proposed governance arrangements between the partners to ensure effective project delivery. List any external parties responsible for delivering goods or services worth more than 10% of the total project value and explain how they will ensure that these parts of the project do not give rise to delays in the delivery of the project. Provide 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. Provide brief CVs of lead individuals within the project team (CVs should be no longer than 2 pages each). You will be able to attach these to the online application form. Explain their quality management standards, including describing how the project team would quality assure their Phase 1 and Phase 2 work.
Criterion 4b	Project planning
Weighting	10%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> Set out the detailed key work packages for the Phase 1 (mobilisation), and high level key work packages for Phase 2 (demonstration). Provide a realistic, robust, justified Gantt chart or project plan detailing the key tasks and timescales for Phase 1, including

	<p>delivering on monitoring and reporting requirements (see Section 9).</p> <ul style="list-style-type: none"> • Provide a well-reasoned high-level Gantt chart or outline project plan detailing the delivery of Phase 2, including delivering on monitoring and reporting requirements (see Section 9). • Provide a detailed project risk register for Phase 1, identifying and detailing key risks, assumptions and dependencies and providing suitable and robust mitigation strategies. This should also include contingency planning. • Provide a summary project risk register for Phase 2, identifying key risks, assumptions and dependencies and suggesting suitable mitigation strategies. <p>We understand that following the mobilisation phase, Phase 2 project plans may change. Phase 1 projects will be required to report these changes to BEIS before progressing to Phase 2.</p>
Scoring	<p>Higher marks will be awarded to applicants that have taken all reasonable steps to maximise the likelihood of successfully delivering the project aims, in line with the scoring guidance in Section 6.2.</p> <p>High scoring applications will, for example:</p> <ul style="list-style-type: none"> • Present well thought-out, robust, and credible project delivery plans which recognise the innate technical risk in any innovation project. • Show a realistic and robust approach to risk management and data collection. • Have a strong delivery team with proven experience of successfully delivering comparable projects. • Guarantee access to any necessary specialist facilities, operational knowledge and skills, and/or other resources required to execute the project. • Show the strong commitment of all participating organisations. • Not be heavily dependent for success on external factors beyond the project’s direct control. • Provide a cost plan outlining how you would use Phase 1 to improve/solidify the cost elements and deliverability of Phase 2.

Criterion 5	Project financing (split into sections a – 10% and b – 10%)
Weighting	20%
Guidance	<p>This criterion will be used to assess:</p> <ul style="list-style-type: none"> • Phase 1 and Phase 2 project costs, to ensure that all eligible costs represent a fair market value, are robust, realistic and justified in terms of the proposed project plans, and are sufficient to provide the deliverables sought. • Level of match funding which will be leveraged by the grant - i.e. the overall proportion of project costs to be funded by match funding; • Additionality of project – i.e. whether work on this technology would be taken forwards without public sector funding. • Outline Phase 2 budget including information about the estimated costs of the proposed Phase 2 demonstration project.
Criterion 5a	Project costs and financing
Weighting	10%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Provide a detailed breakdown of their Phase 1 project costs, which must be realistic, robust, justified and fair market value, in the Project Cost Breakdown Form attached to the online application • Include robust contingency for mitigating risks identified in the Phase 1 risk register; • Evidence the expected level of match funding, for example through letters of intent or minutes of investment decision meetings • Provide a credible plan for reaching project investment decision and achieving project finance closure • Track record in delivery projects similar in nature • Provide an outline budget for their Phase 2 project costs, including contingency for mitigating risks identified in the Phase 2 risk register

Criterion 5b	Value for money to HM Government
Weighting	10%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Describe why the proposal represents good value for money for HM Government. The answer should explain the following: <ul style="list-style-type: none"> ○ How the availability of public funding makes a material difference to the actuality and pace of moving the technology towards commercialisation, ○ How the project delivers efficient, effective and economic use of public money. ○ How the proposed will utilise funding to improve technological readiness and develop a design applicable to the UK electricity grid in order to provide greater flexibility.
Scoring	<p>Highest marks will be awarded to projects that can demonstrate that the proposed public funding contribution to the eligible project costs:</p> <ul style="list-style-type: none"> • will leverage more than the required minimum level of match funding (as determined by the grant funding intensity limits – see Section 4.2); • will represent good use of the Longer Duration Energy Storage grant by supporting projects whose costs are realistic and justified and are likely to secure the expected project aims and deliverables; • will represent good use of the grant by supporting projects which would otherwise struggle to commercialise at a reasonable pace, given current market conditions.

Criterion 6	Contribution to sector capacity-building and knowledge dissemination
Weighting	10%
Guidance	<p>Applicants will be expected to submit a detailed Phase 1 knowledge dissemination plan and outline Phase 2 knowledge dissemination plan, describing:</p> <ul style="list-style-type: none"> • How the learnings from the mobilisation phase/report and demonstration will be shared with industry, including key stakeholders, lessons learned and challenges faced. • The scale and scope of proposed dissemination and knowledge transfer activities. • The extent to which the project, if successful, will broaden or strengthen understanding of the benefits, potential applications, challenges and limitations of longer duration energy storage systems within the UK energy system <p>Applicants will also be asked to describe the contribution of their project to sector capacity-building, including but not limited to:</p> <ul style="list-style-type: none"> • Creating new businesses, jobs and skills ¹¹ • Increasing supply chain resilience and capacity ¹²

¹¹ Activities that, in the delivery of the contract:

- Create opportunities for entrepreneurship and help new, small organisations to grow, supporting economic growth and business creation.
- Create employment opportunities particularly for those who face barriers to employment and/or who are located in deprived areas.
- Create employment and training opportunities, particularly for people in industries with known skills shortages or in high growth sectors.
- Support educational attainment relevant to the contract, including training schemes that address skills gaps and result in recognised qualifications
- Influence staff, suppliers, customers and communities through the delivery of the contract to support employment and skills opportunities in high growth sectors.

¹² Activities that, in the delivery of the contract:

- Create a diverse supply chain to deliver the contract including new businesses and entrepreneurs, start-ups, SMEs, VCSEs and mutuals.
- Support innovation and disruptive technologies throughout the supply chain to deliver lower cost and/or higher quality goods and services.
- Support the development of scalable and future-proofed new methods to modernise delivery and increase productivity.
- Demonstrate collaboration throughout the supply chain, and a fair and responsible approach to working with supply chain partners in delivery of the contract.
- Demonstrate action to identify and manage cyber security risks in the delivery of the contract including in the supply chain.
- Influence staff, suppliers, customers and communities through the delivery of the contract to support resilience and capacity in the supply chain.

Scoring	<p>Highest marks will be awarded to those projects that:</p> <ul style="list-style-type: none"> Are likely to strengthen the longer duration energy storage industry, Are likely to support services and supply chains in the UK therefore building capacity, Have developed and outlined clear dissemination and knowledge-transfer plans, attributing resources to deliver them.
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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**. The projects will be scored using the scoring system outlined below in **Table 2**. Projects must score a minimum moderated total weighted score of 60% (based on total score), and a minimum moderated score of 2 out of 5 against each criterion to be eligible for funding.

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

Table 2: Scoring guidance

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. To be eligible to receive funding, a project must achieve a weighted score of 2 out of 5 against each criterion, with a minimum total weighted score of 60%.

Bidders will be ranked in order of merit in the specific technology category which they have applied to (electrical storage, thermal storage, or power-to-x). The 3 highest-scoring proposals from each category will be put forward for Phase 1 funding if they meet the minimum scores for eligibility for funding. BEIS intends to fund ~9 Phase 1 projects.

If budget is available after this initial award and BEIS sees fit to allocate this budget, the remaining projects, which meet the minimum scores, will be combined into a single ranked list (i.e., combining technology categories) and awarded in order of merit until the budget is depleted or there are no remaining eligible projects.

Should further budget become available, BEIS may choose to award funding to additional projects in order of total scores. It is at BEIS' discretion whether it chooses to award further funding in excess of the initial budget and if so, how many.

In the event of securing additional budget, at BEIS' discretion, BEIS can award funding to additional projects at any point, including after the initial award. In this case, the remaining projects which meet the minimum scores will be combined into a single ranked list (across technology categories) and awarded in order of merit until the budget is depleted.

Bidders should not rely on there being further funding available for the Competition in excess of the allocated budget.

In the instance no eligible proposals are received for a technology category, or no proposals within a category meet the minimum score for funding eligibility, BEIS will consider funding further projects in the other technology categories: after award of the 3 highest scoring eligible proposals in these categories, if projects ranked 4th and lower in the these categories are eligible, they could be combined into a single ranked list and awarded in order of merit until the budget is depleted or there are no remaining eligible projects.

BEIS may allocate less than the total competition budget depending on the quality of the applications. Wherever two or more are tied on score for funding, the moderation panel will be reconvened and will make a decision on which project or projects are funded.

7 Deliverables

It should be noted that knowledge dissemination and sharing activities are a key part of the projects supported in this Competition, as discussed in **Section 12**.

7.1 Phase 1: Mobilisation

Phase 1 projects will be expected to produce a number of deliverables during or at the conclusion of Phase 1:

- Mobilisation report
- Front-end Engineering Design
- Financial close documentation
- Formal grid connection offer and off-taker agreement
- Relevant sign-off from Health and Safety Executive/Environment Agency
- Realistic, robust and justified Phase 2 planning documents
- Knowledge dissemination activities

Mobilisation report. The mobilisation report should detail, as a minimum:

- Confirmation of the sums of private finance leveraged in Phase 1.
- The formalisation of key supply chain relationships established for demonstration of the technology.
- A technology assessment, including:
 - An assessment of the benefits and challenges of the technology including capital and operating costs, process risks, the greenhouse gases mitigated, and how the process could be scaled, against a counterfactual.
 - A route to market assessment, describing the key steps to commercialisation, including significant barriers and risk
- An assessment of the rollout for the technology within the energy sector, once successfully commercialised, including significant barriers and risks, and if applicable an assessment of potential benefits for other sectors.
- A costed development plan for the technology, including a detailed focus on the components of the demonstrator and detailed CAPEX and OPEX breakdown of technology costs.

Throughout the mobilisation report, we expect projects to reflect the lessons learned in the mobilisation phase and describe how they addressed the risks, challenges and uncertainties associated with their proposed technology.

Alongside the mobilisation report, projects will need to deliver appropriate explanations of the analysis undertaken and the raw data used. The mobilisation report will require a log of assumptions made when producing the report, along with an assessment of the impact that gaps in the data may have on the viability of the storage technology.

If there are aspects of this report which are commercially confidential, then project teams will be required to provide a version of the Phase 1 mobilisation report that can be published. Omissions on the basis of commercial reasons should be discussed with BEIS at the earliest opportunity once the grant has been awarded.

BEIS will appoint a Monitoring Officer (one assigned to each project) to monitor the delivery of the mobilisation report and assure it for submission. Projects will need to include sufficient time for the approval process to enable delivery of a final report by **November/December 2022**.

The Mobilisation report will act as the Phase 1 project closure report.

Front-End Engineering Design (FEED). Projects are expected to provide a FEED study, including Basis of Design (BoD), for implementation of the storage technology demonstrator.

The FEED study is required for advancement into Phase 2. If the FEED study has not been completed, projects must provide a lessons learnt document outlining the challenges encountered and mitigation measures employed.

Financial close documentation. Projects are expected to provide:

- Evidence of leveraging at least the minimum private finance required, for match funding of the project¹³ to be compliant with grant intensity levels.
- Heads of Terms and/or final draft commercial contracts for key work packages.
- Evidence of planning permission/certificate of lawfulness obtained for build and operation of the demonstrator.
- Draft end-user commercial contracts, if applicable (further to the grid connection offer – see below).

The financial close documentation is required for advancement into Phase 2. If projects are not at financial close or have a credible route to financial close, they must provide a lessons learnt document outlining the challenges encountered and mitigation measures employed

Formal grid connection offer and off-taker agreement. Projects are expected to provide evidence of a formal offer for connection of their demonstrator to the grid, and a customer who will provide them with a revenue stream.

¹³ Evidence for this activity could include being cited on funding agreements with investors, proof of internal investment committee decisions, and/or becoming a consortium partner for delivery of the build and commission of the project.

Relevant sign-off from Health and Safety Executive/Environment Agency. Projects are expected to provide evidence of approval for their Phase 2 demonstration from the relevant authorities.

Realistic, robust and justified Phase 2 planning documents. For progression into Phase 2, projects must provide a full Phase 2 project plan, a full Phase 2 Project Cost Breakdown plan and Milestone Payment Schedule, a full Phase 2 benefits realisation and management plan, a full Phase 2 risk management strategy, a full Phase 2 resourcing plan and a Phase 2 knowledge dissemination plan.

You will note that Phase 2 planning documents include a benefits realisation and management plan. As detailed in **Section 9.2**, projects which enter Phase 1 will be required to write a benefits realisation and management plan, starting at the Phase 1 kick-off meeting. To be eligible for advancement to Phase 2, we expect projects to be able to submit a detailed benefits realisation and management plan for Phase 2, based on learnings from the mobilisation conducted in Phase 1.

Knowledge dissemination activities. The project knowledge and dissemination requirements are detailed in **Annex 2** of the Grant Funding Agreement Terms and Conditions in Annex 1.

Project Monitoring and Reporting. The project monitoring and reporting requirements are detailed in **Section 5** of the Grant Funding Agreement Terms and Conditions in Annex 1.

Project teams will also be required to support the evaluation of the Longer Duration Energy Storage programme following the end of their project, by providing data on programme KPIs at regular intervals (see **Section 9.4**), through a survey, and taking part in interviews on project delivery and impact. Further information on programme evaluation requirements is set out in **Section 9.5**.

7.2 Phase 2: Demonstration

Only projects which have completed Phase 1 will be eligible to progress to Phase 2.

Phase 1 projects will be considered for progression to Phase 2 based on the achievements in Phase 1 evidenced through delivery of the mobilisation report and other deliverables outlined in **Section 7.1**. Progression to Phase 2 will therefore be based on the quality and completeness of Phase 1 deliverables (more detail can be found in **Sections 8 and 9**).

Projects progressed to Phase 2 must have submitted all required Phase 1 deliverables. **No new projects will be permitted to access Phase 2 funding.**

Phase 2 will be for the build and commissioning of on-site demonstration of static longer duration energy storage products at the agreed sites, achieving TRL of 8 or 9 (for projects with a starting TRL of 6 or 7, respectively).

The deliverables from Phase 2 will be:

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- A full-system demonstrator of the original proposed technology.
- An evidence-based final project report for BEIS (and other government departments) which as a minimum details the design and development of the system, demonstration and trials results, key successes, lessons learned, environmental outcomes including reporting on expected lifecycle greenhouse gas emissions, and next steps. BEIS will supply guidance for this project report.
- A version of the final project report that can be published.
- Contribution to knowledge dissemination activities, including evaluation reports of conducted activities.
- A programme of knowledge dissemination focused on other markets for the proposed technology.
- A detailed assessment of the business plan for how the technology will continue to be developed (commercialisation pathway).
- A version of the commercialisation pathway that can be published.

The project monitoring and reporting and evaluation requirements detailed in **Section 9** will remain the same for projects that progress to Phase 2.

8 Indicative information: Phase 2

8.1 Phase 1 to Phase 2 progression

At the end of Phase 1, projects will undergo a formal stage gate 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 have submitted all required Phase 1 deliverables and complied with their Phase 1 monitoring and reporting obligations (see **Section 7.1** above).

In the instance that the number of projects which have achieved the required Phase 2 eligibility conditions exceeds the budget available for Phase 2, BEIS may increase the funding available or conduct a prioritisation process as per the below **Section 8.3**.

8.2 Eligibility for Funding (Phase 2)

To be eligible for Phase 2, projects must fulfil the following eligibility criteria.

1. Successful completion of Phase 1

To be eligible for progression to Phase 2, all projects must have completed Phase 1, including submitting their deliverables (feasibility study and contribution to knowledge dissemination).

2. Financial close

Projects are expected to either be at financial close, have a credible route to financial close, or provide a detailed document discussing the challenges and any mitigation measures employed. The required supporting documentation is discussed in **Section 7.1**.

3. Relevant sign-off from Health and Safety Executive/Environment Agency

Projects are expected to provide evidence of approval for their Phase 2 demonstration from the relevant authorities.

4. Customers and planning viability

Projects must provide evidence of the viability of their project such as a grid connection offer and off-taker agreement and a defined route to full planning permission at their proposed site to be eligible for Phase 2.

Projects will also be assessed against the original eligibility criteria used in initial bid assessment, to ensure they are still eligible for grant funding. Changes in the project consortium or sub-contractor relationships must be declared and justified to BEIS for

consideration, as the best option to pursue for successful delivery of the project. Any changes will be, at BEIS’ discretion, subject to the financial viability checks described in **Section 10.2**.

8.3 Assessment Process and Criteria (Phase 2)

If the number of projects which have satisfactorily submitted all Phase 1 deliverables exceeds the budget available for Phase 2, and BEIS does not increase the funding available, projects will be assessed for the purpose of allocating Phase 2 funding. The assessment process for Phase 2 will be identical to the assessment process for Phase 1 (in terms of assessors, moderation and minimum scoring required for eligibility for funding). The assessment criteria will differ in several key respects, outlined in **Section 8.3.1**.

The assessment for Phase 2 will be based on the output deliverables of Phase 1:

- Mobilisation report
- Front-end Engineering Design
- Financial close documentation
- Formal grid connection offer and off-taker agreement
- Relevant sign-off from Health and Safety Executive/Environment Agency
- Realistic, robust and justified Phase 2 planning documents
- Knowledge dissemination activities

8.1.1 Assessment Criteria

The assessment criteria for Phase 2 are broken down into 2 separate criteria. Each criterion will be scored independently and will be given a scoring between 1 and 5. The scoring guidance is the same as for phase 1 as described in Section 6.2.

Criterion 1	Completion of Phase 1 Deliverables
Weighting	80% (split into sections a – 50%, b – 30%)
Guidance	Applicants are expected to: <ul style="list-style-type: none"> • Provide a detailed mobilisation report, and FEED study.
Criterion 1a	Mobilisation report
Weighting	50%
Guidance	Applicants are expected to provide a mobilisation report that will:

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	<ul style="list-style-type: none"> • Confirm the private finance leveraged and discuss the formation of supply chain relationships that will enable the proposed Phase 2 works. • Provide a detailed technology assessment further detailing the project costs, technical characteristics, scalability and route to commercialisation discussed in the original application. • Provide a costed development plan with further detail on the CAPEX and OPEX costs. • Assess how the technology can be rolled out in electricity grids and discuss opportunities in other sectors once it has been successfully commercialised.
Criterion 1b	Front-End Engineering Design
Weighting	30%
Guidance	<p>Applicants are expected to:</p> <ul style="list-style-type: none"> • Provide a FEED study, including Basis of Design. • If the FEED study has not been completed, provide a detailed document discussing the challenges and any mitigation measures employed.
Scoring	High scoring deliverables will be detailed and have a strong mobilisation report with sufficient detail on the financial, technical and supply chain requirements to provide confidence that the proposed Phase 2 works can be successfully completed. They will also have provided a detailed FEED study or, at a minimum, a lessons learnt document.

Criterion 2	Knowledge dissemination and reporting
Weighting	20%
Guidance	<p>Projects are expected to:</p> <ul style="list-style-type: none"> • Have successfully participated in one or more knowledge dissemination events to their Monitoring Officers satisfaction. • Produce evaluation reports of knowledge dissemination event(s) including lessons learned.

	<ul style="list-style-type: none"> • Provide a clear plan for participating in at least three knowledge dissemination during phase 2 of the project. • Conduct monthly meetings with their monitoring officer. • Submit progress reports reporting against their chosen benefits and the relevant KPIs (discussed in Section 9). • Accommodate site visits (Covid-19 dependent) for the BEIS programme team.
Scoring	High scoring projects will have demonstrable existing participation in knowledge dissemination and a clear and achievable approach to participating in future events and improving these based on their previous experience, and with full cooperation with reporting and site visit activities.

8.1.2 Selection Approach

The quality of Phase 1 deliverables would be assessed by at least three BEIS and/or independent technical and commercial experts. A moderation meeting will be held at the end of the process to agree the overall combined scores for each of the projects.

Projects would be ranked in order of merit in the specific technology category which they are part of (electrical storage, thermal storage or power-to-x). The highest-quality Phase 1 projects from each category would be progressed to Phase 2. We intend to progress ~3 Phase 2 projects (one from each category).

If budget is available after the initial progression, BEIS may decide to consider progressing additional projects through combining the remaining projects (which meet the minimum scores for eligibility) into a single ranked list (i.e., combining technology categories) and progressing projects in order of merit until the budget is depleted or there are no remaining eligible projects.

Should further budget become available, BEIS may choose to award funding to additional projects in order of total scores achieved. It is at BEIS' discretion whether it chooses to award further funding in excess of the initial budget and if so, how many.

In the event of securing additional budget, at BEIS' discretion, BEIS can award funding to additional projects at any point, including after the initial award. In this case, the remaining projects which meet the minimum scores will be combined into a single ranked list (across technology categories) and awarded in order of merit until the budget is depleted.

Bidders should not rely on there being further funding available for the Competition in excess of the allocated budget.

In the instance no Phase 1 projects within a technology category achieve the eligibility requirements, BEIS will consider progressing further projects in the other technology categories: after progression of the top eligible Phase 1 project(s), the remaining eligible Phase

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1 projects could be combined into a single ranked list and progressed in order of quality until the budget is depleted or there are no remaining eligible projects.

BEIS may allocate less than the total competition budget depending on the quality of the projects being progressed to Phase 2.

All Phase 1 project teams will receive a short summary of key feedback irrespective of whether they progress to Phase 2 or not. BEIS aims to have provided all feedback to applicants once all stage gate reviews have been completed. Feedback will be given at the same time the successful/unsuccessful letters are issued.

9 Reporting

9.1 Project monitoring and reporting

This Competition has a requirement to demonstrate the benefits and KPIs that it is seeking to realise for the Longer Duration Energy Storage Programme and the wider Net Zero Innovation Portfolio. This ensures that the Competition can robustly demonstrate its contribution to key benefits such as decarbonisation and security of energy supply. These benefits and their respective measures are shown in **Table 3 in Section 9.2**.

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 Monitoring Officers and will not be published. Reporting requirements and the relevance of benefits to KPIs is discussed in **Section 9.4**.

9.2 Benefits realisation and management

During the application process, each project will be asked to select one or more benefits that their project will contribute to, in the Programme Performance Indicators and Benefits section of the online application form. Projects should select benefits for which they can report on a minimum of one measure, and should note that if successful, they will be encouraged to report on more than one measure for their selected benefits. The Programme Performance Indicators and Benefits section is not scored as part of the application process but is mandatory to complete.

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
Accelerate Commercialisation	
Value of sales	8

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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	4
Amount of domestic and international interest in the technology	4
Amount of media coverage	4
Increased knowledge stimulating further innovation	
Successful completion and publication of project reports demonstrating viability of new technologies	5
Amount of further R+D capital committed to the innovation	6ii
Amount of additional investment received	8
Number of trial consumers recruited and retained during the project	5
Developing the supply chain	
Number of new companies in the project's supply chain	4
Growth and resilience in UK companies	
Creation of UK jobs: Number of jobs created and retained	3

Increase in the market potential of the innovation	5
Amount of additional investment received	6ii

Table 3: Benefits, measures, KPIs

9.3 Key Performance Indicators

The benefits outlined in **Section 9.4** map to a number of indicative portfolio-level Key Performance Indicators (KPIs) for the NZIP, listed below, which the Longer Duration Energy Storage programme is part of. To note, these KPIs are subject to change. Changes will be communicated to successful projects teams.

- KPI 3: number of organisations/small and medium enterprises (SMEs) or other supported (monitored by Monitoring Officers)
- KPI 4: new business relationships and collaborations (monitored by Monitoring Officers)
- KPI 5: advancement of low-carbon solutions (increase in TRL) (data submitted directly by projects to BEIS)
- KPI 6ii: follow-on funding (data submitted directly by projects to BEIS)
- KPI 7i: reduced unit cost of energy
- KPI 7ii: increased energy efficiency and reduced energy demand
- KPI 7iii: increased system flexibility and potential increased system flexibility by 2032 (data submitted directly by projects to BEIS)
- KPI 8: number of products and services sold (data submitted directly by projects to BEIS)
- KPI 9: potential CO2 emissions reduction by 2032 (data submitted directly by projects to BEIS Programme Support Officer to review and quality assure returns)

Portfolio-level KPIs are to be reported on by the project teams to their Monitoring Officer. All project teams are required to make available to their Monitoring Officer the data required to report against these KPIs.

The project teams will be required to build in project data collection and reporting requirements for all relevant portfolio-level KPIs, using the Project Data Collection and Reporting Template and the Standard Methodology Guidance which will be provided at project kick-off. Project teams will be required to complete the Template at project kick-off and finalise it at project close (reviewing quarterly with their Monitoring Officer), for all relevant KPIs. Upon completion, project teams will return the Template to BEIS, who will review and quality assure.

9.4 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 and highlight successes, issues, and risks.
- Projects will be required to submit a project progress report every quarter. We expect this report to cover, as a minimum:
 - progress against the project delivery plan and project milestones
 - 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 9.2**).

The Competition will be reporting against a selection of the benefits listed below in Table 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 9.3**. This Table is **for information only** and serves to outline the expected level of granularity for reporting against benefits. Not all listed benefits are relevant to the Longer Duration Energy Storage competition.

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.

Based on the benefits selected in their application form, each successful bidder will be asked to complete a Benefits Plan (see **Appendix 2** for an example) at the project kick-off meeting in **November 2021**. 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.

In Phase 1 of the Competition (**November 2021-October/November 2022**), it is expected that projects may not be able to demonstrate significant contribution to the programme benefits. However, given the level of increased information and detail expected to be generated in Phase 1 (feasibility study), projects will be required to submit an updated, detailed Benefits Plan, including how each measure will be reported against, to be considered for down-selection into Phase 2 (see **Section 8**).

9.5 Evaluation requirements

Successful applicants will also be expected 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 is likely to include qualitative and quantitative data collection and analysis in order to assess programme deliver to identify learning and an assessment of programme impact.

Projects will also be expected to participate in an evaluation of the programme during and after final contract payments, to assess the impact of the scheme, including value for money. BEIS will require projects to provide data on KPIs annually, through a survey, and take part in one round of interviews, for three years following completion of their project.

10 Project plans, Finances and Financial viability

10.1 Project plans and finances

All projects must submit a project plan (Gantt chart, or equivalent) for Phase 1 as part of their application; the plan must detail the project timeline, the various work packages and the project milestones and deliverables.

Projects should also submit an outline project plan for delivery of Phase 2.

A detailed cost breakdown is required to enable assessment of value for money.

Financial information should include costs for Phase 1 of the project, detailing labour (including manpower 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.

Estimated project costs should also be provided for the Phase 2 demonstration.

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.

The eligibility of all costs under 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 to be our guide to project expenditure, so delivery and costs should not vary significantly from this without prior agreement of the Department.

10.2 Financial viability checks

BEIS will undertake financial viability checks on all successful applicants.

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);

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- 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).

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

Where a business 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. We will be looking for evidence of your ability to resource the project appropriately, so the information we request will be focused on understanding how your business operates in this respect.

If you are bidding as an existing company, then we will also review the submitted financial statements. Bidders that are assessed to be in financial distress will not be eligible. 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 Guarantee

Where an applicant is a special purpose vehicle (SPV), BEIS will require a parent company guarantee (PCG) and 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. Where BEIS is dissatisfied with the outcome of an applicant's financial viability checks, BEIS may, at its discretion, accept a PCG subject to the necessary financial viability checks being performed on the parent company to BEIS' satisfaction.

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).

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.

10.3 Funding use

Funding provided will only cover eligible costs and as defined in **Section 5 of Annex 1**.

The funding allocation is required to be used by the end of March 2025. If delivery of the piloting, testing and validation are not completed by these dates, private investment match funding can be retained to conduct these activities after the end of the funding allocation.

11 Notifications and Publication of Results

11.1 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 (<500 words) of your proposed longer duration energy storage solution.

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 7** 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.

11.2 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 demonstration activities with other Government Departments, industry and other stakeholders to further understanding and progress technology development and deployment.

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.

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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.

12 Knowledge Dissemination Requirements

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.

The extensiveness of delivering on knowledge activities is at the discretion of the project and will be agreed at project award. To note projects which intend to put more effort into these activities will have a greater contribution to the objectives of the Competition, and therefore score higher at application assessment.

In Phase 1, projects will be required to contribute to a minimum of one knowledge dissemination activity during Phase 1. Examples include participation in industry workshops, conference presentations, publication of articles in peer-reviewed scientific journals, or making project data openly available. In addition, contract recipients are required to feature their projects on open platforms such as the UK Energy Storage Observatory (UKESTO).

In Phase 2, projects will be required to contribute to a minimum of three knowledge dissemination activities. Given the build and commission focus of Phase 2, projects will be expected to increase their efforts in sector capacity-building, contributing significantly to industry conferences or trade shows, as well as engaging in wider knowledge dissemination activities such as those exemplified above. The Monitoring Officer assigned by BEIS will monitor the knowledge dissemination of project teams across both Phases.

The scheme will offer acceleration support to successful applicants. 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. This activity will likely require participation in at least one competition knowledge dissemination event.

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 capabilities namely:

- Market understanding
- Business development and sale
- Strategy and Business Planning
- Technology
- Product
- Supply chain and operations
- Team
- Funding and investment readiness

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Specialist advisers will be assigned by BEIS to support the company in the development of the appropriate knowledge and skills. This may include but will not be limited to services such as:

- Assistance to determine route to market and engaging industrial partners
- Evaluating alternative commercial strategies and support with business planning
- Investment readiness/fund raising support

Across both phases, projects will be required to produce evaluation reports of their knowledge dissemination activities, detailing their activities from Phase 1 and lessons learnt.

13 Intellectual Property Requirements

13.1 Intellectual Property

The proposed arrangements for intellectual property rights (IPR) and exploitation of IPR are set out in the contract 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.

13.2 Ownership of Demonstration Devices

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

14 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 technical assessors and the Longer Duration Energy Storage programme board. 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.

15 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 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.

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All assessors used during the assessment of applications will be subject to a confidentiality agreement.

16 Terms and Conditions

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

17 Further Instructions to Bidders

The Department reserves the right to amend the enclosed Competition documents at any time prior to the submission deadline (**13 August 2021**). Any changes are most likely to include editorial errors and include FAQs from questions asked from stakeholders/applications before **14:00 23 July 2021**. 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.

17.1 Application checklist

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 [here](#).

- Project Cost Breakdown Form (Phase 1)
- Additional Partner Information Form (if you have more than 3 project partners)
- Signed declaration form agreeing to the terms of the application process
- Signed consent form for information sharing
- Signed Statement of Non-Collusion
- Signed Conflict of Interests statement
- Signed Modern Slavery statement
- General Data Protection Regulations (GDPR) Assurance Questionnaire

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

- Phase 1 project plan (e.g. robust and detailed project Gantt chart, or equivalent)
- Business plan and financial model, or similar

- Outline Phase 2 budget
- Outline Phase 2 project plan (e.g. high-level project Gantt chart, or equivalent)
- Complete financial statements covering the past 3 years of activity and/or letters of support from project partners.

17.2 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 4**) 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.

17.3 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 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.

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 TRLs 1 to 9.

Technology Readiness Level	Description
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.
Applied research and development	
TRL 3 – Proof of technical concept	<p>Experimental proof of critical technical functions and validation of feasibility for application. Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include showing the performance of critical technical features or components are feasible (even if not yet integrated or representative of real-life environment).</p> <p>This stage is beyond “discovery science” (TRL1) and applied research (TRL2) and investigates a novel technological or scientific advance with some category of application in mind. The scientific principles of the novel or innovative aspect are already characterised with hard experimental data points that enable prediction of performance, but the science is not necessarily in the final engineered format. In this stage, analytical and experimental studies measure</p>

	<p>parameters of interest, characterise properties and performance, and validate the theoretical predictions. For example, with new materials or combinations of materials, a range of formulations or combinations may be tested to explore the boundaries of performance and to select a combination with the necessary properties for commercial exploitation. System components are not yet fully integrated e.g. the lab demonstration of a new photovoltaic material may show desired properties in a controlled atmosphere but applications will require a suitable encapsulation method. Technology principles may be demonstrated in computer models and computer simulated environments where appropriate. A key output from this stage is to identify how results differ from the expected or necessary performance for future applications and where improvement is necessary.</p>
<p>TRL 4 – Lab and Test Bench Demonstrations</p>	<p>Lab and Test Bench Demos of sub-systems & key components. Modelling & experimentation with parameters representing future conditions.</p> <p>Application proof-of-concept. Modelling and experimentation with data or parameters that represent future conditions (cf. TRL4). “Bench” demonstrators’ show that the core technology components or subsystems based on the lab research could be engineered in practice, behave as predicted, and results indicate that the performance needed for a future application is achievable albeit with further optimisation. Bench demonstrations may focus on the key innovative component of the proposed system/product or demonstrate an entire system with simulated inputs or use of substitute subsystems. For large scale technologies the “bench” demonstration may be at smaller scale and would include tests of scale models in tanks and tunnels. If new manufacturing methods</p>

	<p>will be required, the feasibility of these will be investigated at this stage.</p>
<p>TRL 5 – Development Prototypes</p>	<p>The system, sub-system, components, or sub-scale units are integrated with reasonably realistic supporting elements so it can be tested in a simulated or representative environment.</p> <p>Critical cost assumptions are carefully investigated and the feasibility of the proposed manufacturing process is tested. A new manufacturing step may require a separate “product development” process for the manufacturing equipment. Prototype components and sub-systems are developed and improved to show that all the proposed technical components can provide the performance which will be required for future application (including: longevity, reliability, energy efficiency). Representative hardware and software components are tested in way that realistically simulates anticipated operating conditions or allows realistic predictions to be made. A relevant environment may be: laboratory test rigs with simulated use conditions, a controlled operational environment, or basic field tests. A test rig for new component technologies may be a version of the end-product. Intended functionality, size/form factor, and performance features are known at this stage. Successful development prototypes (components) become the basis for a demonstration prototype for full field tests.</p>
<p>Demonstration</p>	
<p>TRL 6 – Engineering or Demonstration Prototype</p>	<p>Full-scale system in representative conditions - Engineering Prototype. Representative full-scale prototype system is tested in a relevant environment. Proof-of-application.</p> <p>Critical cost factors and new manufacturing capability are refined at this stage e.g., use of cost-effective materials, demonstration that</p>

	<p>new components can be manufactured, demonstration of any new manufacturing steps or processes. Not all secondary interfaces or user features are (necessarily) available yet. Representative prototype is demonstrated in a relevant environment to prove engineering feasibility. The component/sub-system designs selected at previous stage are validated. Demonstration prototypes are typically fitted with a range of monitoring/measurement systems and operated in real-life systems and conditions with continual adjustment to confirm or optimise performance claims. Core functionality, size/form factor, and benefits of the proposed product should all be demonstrable but not all end-user features or interfaces are necessarily available at this stage. Some third part measurement validation or tests are usually best done at this stage (particularly to validate improved performance over other technologies or to confirm any necessary certification and approvals that need to be obtained).</p>
<p>TRL 7 – Operational Prototype (Alpha Product)</p>	<p>Near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment. Prototype for prolonged use at “tame” client or user site. All planned functions, interfaces integrated for monitored trials under the developer’s control.</p> <p>Alpha product prototypes are at or close to the proposed final product configuration which can be fully tested in an “in-house” trial in operational or client-like environments with integration to all systems or interfaces which will be experienced in-use. Alpha trials should validate in-use performance and also test the following: integration to all other relevant systems, features needed to support proposed installation and maintenance procedures, exposure to all other influences</p>

	<p>likely to be experienced in the “user-environment” etc.</p> <p>All the manufacturing steps will be tested at this stage and repeatable samples provided. Third party specialist tests would be done at this stage if not possible earlier. Prototypes may have minor re-designs following alpha tests but should not be subject to major re-designs if earlier stages have been completed properly. “In-house” means the developer runs and the trial and has access to the system(s) during the trial. Performance is not public but Alpha tests could be at "tame client" sites. Companies would not typically expect to sell prototypes at this stage.</p>
<p>Pre-commercial deployment</p>	
<p>TRL 8 – Production Prototype (saleable Beta product)</p>	<p>System Incorporated in Commercial Design - Production Prototype (or process). Development is complete, final design and feature set, limited release to appropriate number of clients, all fulfilment procedures trialled and documented. Trials under client / users control and operation. Technology is proven to work - technology design for production or roll-out is completed and qualified through test and demonstration.</p> <p>Development complete, final design and feature set, limited market release to appropriate number of clients, all fulfilment procedures trialled and user documentation complete. Saleable product. (cf. TRL 8 / 9)</p> <p>A beta or pre-production prototype is the configuration which the venture expects to sell repeatedly. These designs are finalised to a product specification and ready for repeat production. Client trial would validate: all the features and functions of the system perform as needed under expected conditions. A full product beta test includes trialling sales</p>

	<p>processed (to some extent by signing up “beta-clients”), delivery and installation procedures, integration and commissioning procedures, instructions for use, monitoring, support and maintenance procedures. Suppliers will provide short-runs of components or assembled product. There needs to be a sufficient number of beta-sites to validate the product or solution is repeatable and reliable. At the end of a successful beta test the company should be in a position to sell the product to a client for reliable on-going use.</p> <p>Repeated sales may be measured in 10’s or 1000’s depending on the technology and the cost of making iterations or improvements to the product design. However, by the above staged process, when the “beta” product prototype is prepared the venture has confidence that they could make repeated sales which will not require a re-call or levels of remedial support that would hamper the company’s future progress.</p>
<p>TRL 9 – Marketable Product</p>	<p>Marketable Product: proven in repeated use - Product being sold in market, scaling up sales volumes. Actual application of technology is in its final form - Technology proven through successful operations.</p>

Appendix 2: Example Benefits Plan

Benefit Name	Description	Timeframe	Measure	Frequency of Measure	Performance			
					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 technologies	Reducing the manufacturing costs to increase consumer acceptability	Over 5 years	Reduction in cost £	Forms part of quarterly review At project close 5 years after project close	160	150	110	100
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

Table 4: Example Benefits Plan

Appendix 3: Exclusion Grounds

1. 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;

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;

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- 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

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 social 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.

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

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 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

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.

3. 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

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).

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