



Department for  
Business, Energy  
& Industrial Strategy

# 2018 CALL FOR CCUS INNOVATION

## Guidance Notes



July 2018

# 2018 CALL FOR CCUS INNOVATION

## Guidance Notes

2018 Call for CCUS innovation

© Crown copyright 2018

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence.

To view this licence, visit [www.nationalarchives.gov.uk/doc/open-government-licence/](http://www.nationalarchives.gov.uk/doc/open-government-licence/) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

Any enquiries regarding this publication should be sent to us at [Industry.Innovation@beis.gov.uk](mailto:Industry.Innovation@beis.gov.uk).

# Contents

Part 1: Call for CCUS Innovation – Summary	2
1. Call for CCUS Innovation – Overview	2
2. Incubation Support	4
3. Application and Assessment Process	6
4. Eligibility for funding	8
This call allows applicants to submit more than one project proposal, but the proposals must be materially different.	9
5. Funding Levels and State aid requirements	9
6. Project Plans, Finances and Financial Viability	14
7. Assessment Process and Criteria	15
8. Notification	18
9. Feedback, re-application and right of appeal	19
10. Confidentiality and Freedom of Information	19
11. Frequently Asked Questions	20
Part 2 - Completion of the Application and Finance Forms	21
1. Completion of the Application Form	21
2. Completion of the 2018 Call for CCUS Finance Form	52
Appendix 1 – Eligible Costs	54
Appendix 2 – Technology Readiness Levels (TRLs)	56

# Part 1: Call for CCUS Innovation – Summary

## 1. Call for CCUS Innovation – Overview

In October 2017 the Clean Growth Strategy set out the new Government approach to CCUS in the UK, highlighting the important role of innovation<sup>1</sup> in supporting cost reduction. To support this, the Government committed to spend up to £100 million from the BEIS Energy Innovation Programme to support Industry and CCUS innovation<sup>2</sup> to improve business and industry efficiency, and to further reduce the cost of deploying CCUS.

The £15 million BEIS Call for CCUS Innovation will provide grant funding to innovation projects that significantly reduce the cost of capturing and sequestering carbon dioxide (CO<sub>2</sub>). The scope of the call covers the full range of CCUS innovation which includes carbon capture, transport, utilisation and storage. This covers both power and industrial CCUS and includes greenhouse gas removal (GGR) approaches that are based on capturing and sequestering carbon dioxide. This call will consider funding research infrastructure that enables the UK to conduct world-leading research and innovation in CCUS. Innovation projects on hydrogen will not be considered as BEIS is funding a £20m Hydrogen Supply programme that focusses specifically on this theme.

Please note BEIS is supporting two innovation programmes offering grant funding for CCUS Innovation: this call and the recently announced second call of ACT (Accelerating CCS Technologies). BEIS and UKRI are providing funding of up to £6.5m to allow UK participation in second call ACT projects. This is intended so that internationally focussed projects can be directed at the ACT call and more UK focussed projects at the £15m Call for CCUS Innovation. Details of the second call of ACT can be found here<sup>3</sup>.

In 2017 BEIS commissioned Amec Foster Wheeler (now Wood) to assess the most promising CO<sub>2</sub> capture technologies to inform future innovation spending programmes and to shape future policy direction for carbon capture technologies in the power and energy intensive industries<sup>4</sup>. Eleven benchmarks were studied that comprised eight current state-of-the-art carbon capture technologies on power generation, two leading next generation carbon capture technologies on power generation, and one carbon capture benchmark on

---

<sup>1</sup> Clean Growth Strategy, published October 2017:

<https://www.gov.uk/government/publications/clean-growth-strategy>

<sup>2</sup> Details of the Industry and CCUS Innovation theme can be found at:

<https://www.gov.uk/guidance/funding-for-low-carbon-industry>

<sup>3</sup> <http://www.act-ccs.eu/calls/>

<sup>4</sup> Assessing the Cost Reduction Potential and Competitiveness of Novel (Next Generation) UK Carbon Capture Technology – Benchmarking State-of-the-art and Next Generation Technologies, Wood, July 2018

hydrogen production. The findings of this benchmarking will be used by BEIS to ensure future innovation funding for CCUS leads to a significant reduction in the cost of capturing and sequestering CO<sub>2</sub>.

Both company-led and university-led projects will be considered if they lead to:

- A significant reduction in the cost of capturing and sequestering CO<sub>2</sub><sup>5</sup>;
- A quicker and more widespread deployment of CCUS to meet the ambition of the Paris Agreement;
- A route for the intellectual property (IP) to be commercialised following the project.

The Call is eligible for all sizes of organisation and will provide grant funding for projects of up to 24 months, finishing before 31<sup>st</sup> March 2021. The projects can involve working with international partners, but the work funded must largely be conducted in the UK. Small and medium size companies that are selected may also receive incubation support, see section 2.

BEIS will fund project proposals that meet either the definition of Feasibility Study, Industrial Research, Experimental Development, or Research Infrastructure (see below definitions)<sup>5</sup>. Grants of up to:

- £5m will be considered for Industrial Research, Experimental Development and Feasibility Studies under Article 25;
- £725,000<sup>6</sup> if applying as a small innovative start-up under Article 22;
- £7m will be considered for Research Infrastructure under Article 26;

### 1.1 Definition of Feasibility Study

Feasibility Study is defined as ‘the evaluation and analysis of the potential of a project, which aims at supporting the process of decision-making by objectively and rationally uncovering its strengths and weaknesses, opportunities and threats, as well as identifying the resources required to carry it through and ultimately its prospects for success.’

### 1.2 Definition of Industrial Research

Industrial research is defined as ‘the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services.’

Activities may include:

- The creation of component parts of complex systems;
- The construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems;

---

<sup>5</sup> This will be based on methods, assumptions and findings in keeping with the BEIS/Wood study

- Pilot lines, when necessary for the industrial research and notably for generic technology validation.

### 1.3 Definition of Experimental Development

Experimental development is defined as: ‘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’.

Activities undertaken may include 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.

### 1.3 Definition of Research Infrastructure

Research Infrastructure is defined as ‘the facilities, resources and related services that are used by the scientific community to conduct research in their respective fields and covers scientific equipment or sets of instruments, knowledge based resources such as collections, archives or structured scientific information, enabling information and communication technology-based infrastructures such as grid, computing, software and communication, or any other entity of a unique nature essential to conduct research. Such infrastructures may be ‘single-sited’ or ‘distributed’.

## 2. Incubation Support

The scheme may provide incubation support to successful SME 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.

The starting point for incubation 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

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:

- Market research, segmentation and validation of market requirements
- Assistance to determine route to market and engaging industrial partners
- Intellectual property advice
- Evaluating alternative commercial strategies and support with business planning
- Investment readiness/fund raising support

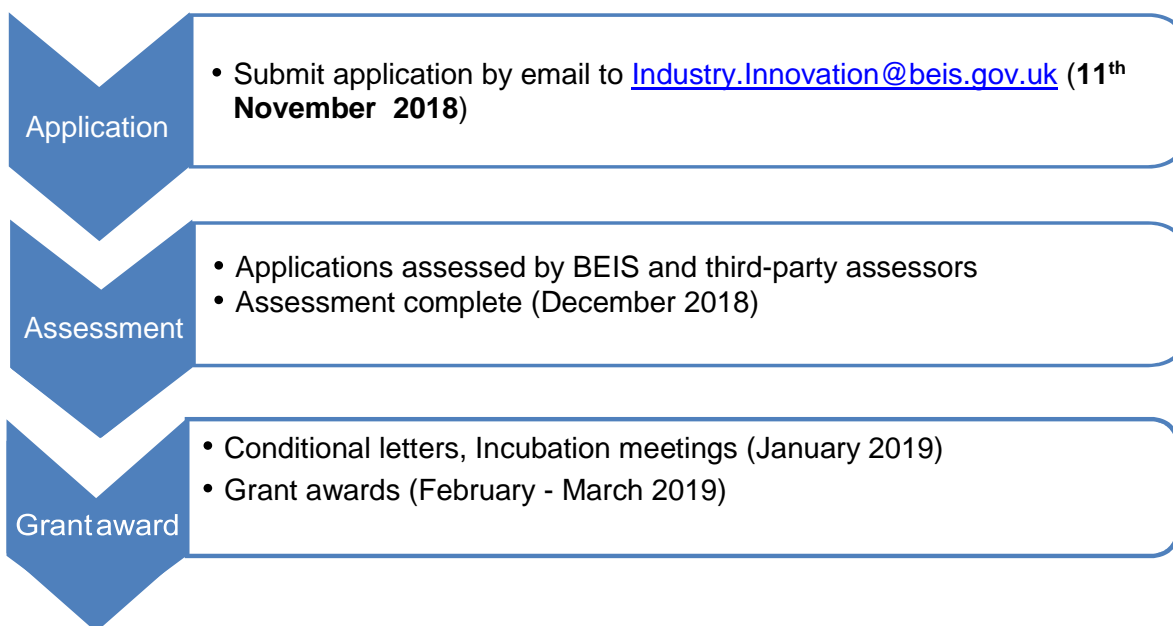
All SME proposals that are awarded funding for innovation development will undergo assessment for incubation support requirements. This planning session will be conducted by the BEIS Supplier appointed to deliver Incubation Support. A member of the BEIS Innovation Team will attend this session to discuss any issues raised during the grant project assessment process, as well as explain the content of the Grant Offer Letter.

BEIS has designed this strand of help to ensure that grant recipients achieve maximum commercial impact from the grant. Therefore, receiving the identified incubation support is a condition of the grant award and grant recipients are required to co-operate with both the Incubation Planning Session and the Incubation Manager who will oversee the delivery of the incubation support.

The role of the Incubation Manager has been integrated into the grant monitoring processes and thus any failure or refusal to support this element of the programme will result in termination of the grant.

### 3. Application and Assessment Process

#### Call for CCUS Innovation timings: Launch 31<sup>st</sup> July 2018



As outlined in the diagram above, the competition process will be undertaken in three key stages comprising application, assessment and grant award.

#### Stage 1: Application

- Applicants are invited to submit project applications by **11<sup>th</sup> November 2018**, these must be electronic and be sent to [Industry.Innovation@beis.gov.uk](mailto:Industry.Innovation@beis.gov.uk). The email subject line must begin 'Call for CCUS Innovation Application'.
- The application documents are:
  - Application form
  - Finance form (one per project application)
  - Gantt chart
  - Letters of support from collaborators/partners (where relevant)
- BEIS will accept additional supporting information in the form of further annexes, however you should not assume that any additional information will be reviewed as part of the selection process and your application should not rely on information cross-referenced within annexes.
- If you have any other questions about the CCUS call, these should be sent by e-mail to [Industry.Innovation@beis.gov.uk](mailto:Industry.Innovation@beis.gov.uk) by **31<sup>st</sup> August 2018**. To ensure an open and transparent competition answers to questions will be added to our FAQs. These will be republished including all questions asked on **14<sup>th</sup> September 2018**.



### Stage 2: BEIS Assessment

Applications will be initially checked according to Eligibility Criteria detailed in section 4.

**N.B. Applications which fail the Eligibility Criteria will not be assessed further, so it is essential to ensure that your project meets these before you submit your application.**

Applications which meet the Eligibility Criteria will then be assessed against the Assessment Criteria detailed in section 8. The assessment will be done by assessors from BEIS, a third-party contractor, and potentially a representative from UK Research & Innovation (UKRI).

All applicants will receive a short summary of key feedback regarding their applications irrespective of whether they are successful or not. BEIS aims to have provided all feedback to applicants within two months of the final funding decision. However, applicants are asked to remember that BEIS may receive a significant number of applications and the timing of the release of feedback will be at BEIS's discretion.

### Stage 3a: Grant Awards that include Incubation Support

For proposals that are eligible for incubation support, successful applicants will be notified via email that they have been pre-selected for an incubation planning session. Following notification of pre-selection, the eligible costs of proposals will be checked and the company's financial viability confirmed. A meeting will be set up with the applicant, the incubation co-ordinator and manager, and a BEIS official.

Once this planning session has taken place, any funding pre-requisites and receipt of the identified incubation support will become conditions of the grant. The incubation planning may identify some actions that need to precede the innovation development project. In such cases funding may be provided at BEIS's discretion to help carry out these actions and the milestones in the project plan amended accordingly.

There will also be an opportunity to discuss the Grant Offer Letter at this meeting and an official from BEIS will explain the conditions of the letter and respond to any queries which the applicant may have at this stage.

Where an incubation planning session identifies any issues with the applicant's project which were not clear from the application documents or which may impact on the successful delivery of the project, BEIS reserves the right not to proceed to the Grant Offer Letter stage.

**N.B. Successful applicants have only received provisional approval for a grant, until successful completion of the incubation planning meeting and BEIS's acceptance of the incubation plan which comes from it.**

On satisfactory completion of the Incubation Meeting, the conditions agreed, and signing of the grant offer letter, the project can begin.

### Stage 3b: Grant Awards without Incubation Support

For proposals that are ineligible for incubation support, successful applicants will be notified via email that they have been provisionally awarded a grant, and a provisional grant offer letter will be provided. A meeting will be set up with the applicant and a BEIS official to explain the conditions of the letter, respond to any queries which the applicant may have at this stage and to agree the milestone schedule. On satisfactory completion of the meeting and signing of the grant offer letter, the project can begin.

## 4. Eligibility for funding

To be eligible for funding, proposed projects must meet all of the following criteria:

### 1. Innovation and technology readiness:

- i. The project is at a Technology Readiness Level (TRL) 3 or above (Critical Function or Proof of Concept Established).
- ii. Projects must fall within the EU General Block Exemption Regulation (GBER) Article 2 definitions of industrial research (85), experimental development (86), feasibility study (87) or research infrastructure (91) and be eligible either under Section 3 Article 22 (Aid for start-ups), Section 4 Article 25 (Aid for research and development projects), or Article 26 (Investment aid for research infrastructure).<sup>6</sup>

**2. Project Status:** BEIS is unable to fund retrospective work on projects. The value of retrospective work may, however, be considered in the assessment process.

**3. Aid Intensity including cumulation:** The funding levels applied for must be consistent with the appropriate Block Exemption aid intensity levels (including consideration of the cumulative effect of other forms of state aid) and costs must be consistent with the eligible cost criteria (as set out in Appendix 1).

**4. Match-funding:** Given the aid intensity rules, applicants will need to have private funding in place to cover the balance of the eligible costs. Such funding may come from a company's own resources or external private sector investors, but may not include funding attributable to any public authority or EU institution. The match funding must be at least 10% of the total project costs.

---

<sup>6</sup>COMMISSION REGULATION (EU) No 651/2014 of 17 June 2014

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN> .

NB The UK's rights and obligations of EU membership, including compliance with State aid rules, continue to apply until the UK's exit from the EU has been completed.

**5. Project Location:** The project's activities must largely be conducted in the UK, with at least 51% of the eligible costs based in the UK.

**6. Grant size:** The total requested grant does not exceed £7m if applying as Research Infrastructure under Article 26, or £5m if applying for aid for Research and Development projects under Article 25, or £725,000<sup>7</sup> if applying as a small innovative start-up under Article 22.

Since BEIS is seeking to maximise the impact of government funding, projects looking for public funding intensities that are lower than the applicable maximum are likely to score higher in the appraisal process.

**7. Technology scope:** The project must focus on:

- the capture, transport, utilisation and storage of CO<sub>2</sub>; or
- a greenhouse gas removal approach that captures and sequesters CO<sub>2</sub>.

**8. Project duration:** Projects can last up to two years (24 months); however financial completion must not exceed 31<sup>st</sup> March 2021.

### 4.1 General conditions:

Companies of any size are eligible to seek funding.

Applicants who have been successful or unsuccessful under other BEIS grant schemes, such as the Energy Entrepreneur's Fund, may apply for funding under the CCUS call and they will neither be advantaged nor disadvantaged by their previous applications.

This call allows applicants to submit more than one project proposal, but the proposals must be materially different.

## 5. Funding Levels and State aid requirements

This scheme operates under three different General Block Exemption Regulation articles for State Aid. The three articles are Article 22 'Aid for start-ups', Article 25 'Aid for research and development projects' and Article 26 'Investment aid for research infrastructures'.<sup>8</sup>

The size and type of funding that the project can receive will depend upon the type of applicant and which GBER Article they qualify under. These can broadly be defined as "small enterprises" (as defined by the EU) and "all other applicants".

---

<sup>7</sup> This limit is set in accordance with Article 22. The limit is article 22 is set in Euros, therefore this value is the maximum available but could go down.

<sup>8</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

### 5.1 Funding for Small Innovative Start-ups

Small start-ups applying under this scheme may be eligible to be funded under Article 22. In order to be eligible, the company must be:

- A small enterprise as defined by the EU<sup>9</sup>
- In existence for less than 5 years and unlisted

R&D expenses must represent at least 10% of total operating expenses in at least one of the three years preceding the date of application or in the case of a start-up without any financial history, in the audit of its current fiscal period, as certified by an external auditor.

The maximum amount of funding that a company may receive shall not exceed £725,000<sup>10</sup>. SMEs need to demonstrate a 10% cash match. BEIS is seeking value for money from its funding and will therefore look favourably on applicants who can demonstrate a match that is greater than 10%.

Companies that are successful in receiving funding and that have indicated that they are eligible for funding under this State Aid article, may additionally be asked to provide a copy of their business plan prior to the final award letter being issued.

If as a 'Small Start-up' you are not eligible under Article 22 (defined above) then it is still possible to qualify for funding under the All Other Applicants scheme as detailed below.

### 5.2 Research and Development Funding for All Other Applicants

The scheme is also open to:

- All SMEs (including Small Enterprises who do not qualify above)
- Other private sector organisations irrespective of size
- Collaborative proposals
- Universities and Public Sector Research organisations)

These applicant(s) to the scheme will be eligible to receive up to £75m for funding a project under Article 25<sup>11</sup>. The maximum percentage of public funding that can be provided for the project is summarised below in Table 1.

NOTE: If you are applying as a Small Innovative Start-up, this table is not applicable please refer to section 5.1.

#### Table 1: Maximum public funding for projects

---

<sup>9</sup> See Annex 1 of the General Block Exemption Regulation: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

<sup>10</sup> This limit is set in accordance with Article 22. The limit in Article 22 is set at 800,000 euros, therefore this value could go down depending upon exchange rate movements. The exchange rate in force at the point at which aid is granted will determine the euro value of the aid given.

<sup>11</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

Research Category	Size of Enterprise	Maximum amount of aid towards eligible Project Costs
<b>Feasibility Studies</b>	Small	70%
	Medium	60%
	Large	50%
<b>Industrial Research - Single Companies</b>	Small	70%
	Medium	60%
	Large	50%
<b>Industrial Research - Collaborations (either Business to Business or between Business and research organisations)</b>  1. Note: certain conditions must be fulfilled for collaboration (See Article 25(6) of the Block Exemption <sup>12</sup> )	Small	80%
	Medium	75%
	Large	65%
<b>Experimental Development - Single Companies</b>	Small	45%
	Medium	35%
	Large	25%
<b>Experimental Development - Collaborations (either Business to Business or between Business and research organisations)</b>	Small	60%
	Medium	50%

<sup>12</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

Research Category	Size of Enterprise	Maximum amount of aid towards eligible Project Costs
Note: certain conditions must be fulfilled for collaboration (See Article 25(6) of the Block Exemption <sup>13</sup> )	Large	40%

The figures represent the maximum aid intensity that BEIS will provide under the 2018 Call for CCUS Innovation. State Aid compliance is a legal requirement and the risk of non-compliance rests with the grant recipient<sup>14</sup>. It is therefore crucial that you address State Aid fully within the application, as any errors at this stage may result in BEIS being able only to offer a reduced level of funding. BEIS is seeking value for money from its funding and proposals that demonstrate matched funding greater than minimum requirement will be looked on favourably.

If you are applying as a collaboration, you must also submit a copy of the Heads of Terms for your collaboration agreement. This will form part of the assessment process and BEIS will review it to ensure that proposed collaborations are viable and robust.

Please note: if you are applying under Article 25, you will be required to demonstrate that your project falls within the definition of feasibility study, industrial research or experimental development as set out earlier.

### 5.3 Funding for Research Infrastructures

The scheme will also be open to support applicants looking to construct or upgrade research infrastructures. These infrastructures can receive up to £7m from the 2018 Call for CCUS Innovation. The maximum aid intensity for economic and non-economic activities is up to 50% and up to 100% of eligible costs respectively. See below condition for when research infrastructure is almost exclusively (>80%) used for non-economic activities.

Research infrastructures funded under Article 26 must:

- Perform economic activities – where non-economic activities are performed by a research infrastructure, the finance costs and revenues for economic and non-economic activities must be recorded to ensure that the share of economic activities matches the situation envisaged when the grant was given;
- Price charges for the infrastructure must correspond to the market price;

---

<sup>13</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

<sup>14</sup> The UK's rights and obligations of EU membership, including compliance with State aid rules, continue to apply until the UK's exit from the EU has been completed, and therefore for this competition.

- Access shall be open to several users on a transparent and non-discriminatory basis, however an undertaking which has financed at least 10% of the investment costs may be granted preferential access, provided this is proportional to their contribution and the conditions are publicly available.

In accordance with European Commission's framework for state aid for research and development and innovation<sup>15</sup>, research infrastructure that performs non-economic activities will be treated as follows:

'Where a research organisation or research infrastructure is used for both economic and non-economic activities, public funding falls under state aid rules only insofar as it covers cost linked to the economic activities. Where the research organisation or research infrastructure is used almost exclusively for a non-economic activity, its funding may fall outside state aid rules in its entirety, provided that the economic use remains purely ancillary, that is to say corresponds to an activity which is directly related to and necessary for the operation of the research organisation or research infrastructure or intrinsically linked to its main non-economic use, and which is limited in scope. For the purpose of this framework, the Commission will consider this to be the case where the economic activities consume exactly the same inputs (such as material, equipment, labour and fixed capital) as the non-economic activities and the capacity allocated each year to such economic activities does not exceed 20% of the relevant entity's overall annual capacity.'

For projects funded under Article 26, BEIS will put in place a process to monitor the economic and non-economic use of the assets to ensure that the aid intensity is not exceeded and that use is as expected at the point the aid is granted, and if necessary BEIS will be required to claw-back funding.

### 5.4 Public funding

When considering levels of aid intensity (described above), public funding includes the grant and all other funding from, or which is attributable to, other government departments, UK public bodies, other Member States or the EU institutions. Such funding includes grants or other subsidies made available by those bodies or their agents or intermediaries (such as grant funded bodies).

In applying to this Call you must state if you are applying for, or expect to receive, any funding for your project from public authorities (in the UK or in other Member States) or the EU or its agencies. Any other public funding will be cumulated with BEIS funding to ensure that the public funding limit and the aid 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 State Aid, applicants should establish that they fall within the state aid

---

<sup>15</sup> COMMUNICATION FROM THE COMMISSION – Framework for state aid for research and development and innovation  
[https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0627(01)&from=EN)

rules before submitting applications. BEIS requires applicants to notify them of any change to situation or circumstance during the project.

If there is a breach of State aid regulations, for whatever reason, the European Commission 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 permitted percentages stated for the relevant Article.

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.

## 6. Project Plans, Finances and Financial Viability

### 6.1 Project Plans

Projects are expected to be up to 24 months in duration. All projects must be financially complete by 31<sup>st</sup> March 2021. All projects must submit a detailed Gantt chart (or equivalent) as part of their application, which details the project timeline, the various work packages and the project milestones.

### 6.2 Project Costs

All applicants must complete the 2018 Call for CCUS Finance Form detailing their expected expenditure and spending profile for the project on a quarterly basis. Further details about this form are in Part 2 of this document. You should complete a single form covering your entire project and including all your partners, clearly identifying which costs relate to which partner. Multiple Finance Forms will not be accepted and will result in failing the Eligibility Criteria.

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 state aid rules and the financial viability of your organisation will be checked following the decision to pre-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.

BEIS understands that project costs are subject to change prior to agreeing a Grant Offer Letter and throughout the course of the project, and we will therefore review the project budget with you with a view to producing a final version to be included in the Grant Offer Letter.



BEIS generally does not accept contributions in kind as match funding, as these are ascribed a notional cost. However, where money changes hands (e.g. for the time of managers or experts who are paid by yourselves or another partner) this would not be considered as in-kind match funding.

### **6.3 Financial viability checks**

BEIS will undertake financial viability checks on all successful applicants. These will include looking at 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 may 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.

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. 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. 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 within the Grant Offer Letter. 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.

### **6.4 Grant Use**

Grants provided will only cover eligible costs within the meaning of Article 22, 25 and 26 of the General Block Exemption Regulation. Companies should note that the grant may not be used to subsidise commercial activities and that where BEIS awards a grant for the purpose of the development of commercially usable prototypes or pilot projects, any revenue generated from such commercial use will be deducted from the grant (and, where the grant has already been paid, will be required to be returned to BEIS).

## **7. Assessment Process and Criteria**

All applications will be considered against the assessment areas and ranked against each other.

The application form and guidance notes are designed to inform you about the types of information you should provide to BEIS for your proposal to be assessed.

## Part 1: Call for CCUS Innovation – Summary

---

For the avoidance of doubt, the individual questions listed under the headings below do not constitute assessment sub-criteria, but are an indication of the kinds of factors that will be considered in assessing each aspect of a proposal.

The highest scoring applications will proceed to the Grant Offer Letter stage. BEIS may offer a grant to the highest scoring projects, that is of lower value than applied for, if this will enable a greater number of projects to be supported under the Call. We will select projects that offer the best value for money taking account of the following areas:

**1. Innovation – Cost reduction potential of the innovation**

**– Questions 1A, B & C**

**30%**

Is the underlying technology technically feasible (i.e. does it break the laws of physics, etc.)?

To what extent does the proposed technology demonstrate how the cost of deploying CCUS can be meaningfully reduced?

Does the venture demonstrate an understanding of the competitive landscape?

How the innovation compare to competitor solutions?

Have additional benefits, other than cost reduction, been identified?

How robust is the case for explaining that the additional benefits will appeal to customers and will help to generate value?

**2. Innovation – Impact on CCUS Deployment – Question 2**

**20%**

How will the innovation lead to a quicker more widespread deployment to CCUS to meet the ambition of the Paris Agreement?

Are the stages of the technology’s deployment well understood?

What is the time of innovation to market?

Is the technology expected to be widely deployable?

Is the early level of CCUS deployment achievable?

Is the learning and associated cost reduction from early deployment credible?

What is the chance of success of market adoption?

**3. Business Model & Route to Market – Question 3**

**10%**

Has a route to market and business model been identified?

How robust is the case for exploiting the project outcomes to generate value?

Does the innovation have other uses beyond CCUS application that will offer alternative target markets?

Does the applicant demonstrate a realistic understanding of market potential and future sales?

Has the applicant clearly identified and understood their target market?

**4. Project Details – Questions 4 & 5**

**20%**

Is the technical and methodological approach appropriate to the needs of the project and are the innovative steps achievable through the proposed approach?

Is the project plan sufficiently detailed in comparison to the complexity of the project?

Is the timing of key milestones realistic?

Has the applicant demonstrated sufficient resource commitment and capability to undertake the project?

**5. Project Funding – Questions 6 & 7**

**10%**

Is the budget realistic for the scale and complexity of the project?

Has the applicant provided a realistic budget breakdown?

To what extent does the project provide match-funding?

Do the work packages align with the predicted spend profile shown on the finance form?

How strong is the case for added value of public funding?

Assessors will consider if the project costs reflect fair market value and whether the proposal offers a good value for money proposition.

**6. Experience and Skills – Question 8**

**10%**

Does the business have the right, available mix of skills and experience to deliver the project successfully?

Is appropriate use being made of sub-contractors where in-house skills are either insufficient or not available in the right timeframe?

Where sub-contractors are being used, does the management team have experience of managing external contractors? Can any skills gaps be addressed by the incubation support?

## 8. Notification

Applicants will be informed by email whether their application has been successful (or unsuccessful), subject to compliance with the terms and conditions of the Conditional Offer that will be received and successful completion of the Incubation Planning meeting.

BEIS may wish to publicise the results of the scheme which would include 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 may, for example, outline the overall results of competitions and describe some of the projects to be funded.

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.

Any organisation that wishes to publicise its project, at any stage, must contact the Project Manager of the CCUS Call at BEIS before doing so.

### 9. 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 summary comments of the Assessors. 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 check list of points which must be answered or argued in a resubmitted application as the assessors may be different and it is your decision as to whether you act on the suggestions made.

### 10. Confidentiality and Freedom of Information

Where any request is made to BEIS under the Freedom of Information Act 2000 (“FOIA”) for the release of information relating to any project or applicant, which would otherwise be reasonably regarded as confidential information, then BEIS will notify you of the request as soon as we become aware of it. An applicant must acknowledge that any lists or schedules provided by it outlining information it deems confidential or commercially sensitive are of indicative value only and that BEIS may nevertheless be obliged to disclose information which the applicant considers confidential.

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.

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

### 11. Frequently Asked Questions

As part of the launch documents for the 2018 Call for CCUS Innovation, we have prepared a set of Frequently Asked Questions (FAQs) covering questions that applicants might have.

If you have any other questions about the CCUS call, these should be sent by e-mail to [Industry.Innovation@beis.gov.uk](mailto:Industry.Innovation@beis.gov.uk) by **31<sup>st</sup> August 2018**. To ensure an open and transparent competition answers to questions will be added to our FAQs. These will be republished including all questions asked on **14<sup>th</sup> September 2018**.

Please note, we are unable to enter into detailed discussions about individual project ideas.

# Part 2 - Completion of the Application and Finance Forms

## 1. Completion of the Application Form

This section aims to guide you through the completion of the 2018 Call for CCUS Innovation Application Form. It is important that a response is provided to every question. This guidance is intended to explain what type of information applicants should consider providing to BEIS to best demonstrate the merit of their application.

Applications will be judged based on the information provided in the application form and any supporting information provided. Although questions relating to the call can be asked by **31<sup>st</sup> August 2018** (see Part 1 Section 11). There will not be the opportunity to enter into discussion about your project with the assessors or BEIS. These guidance notes are not intended to be exhaustive; applicants are expected to develop their own responses based on your own skills, knowledge and experience. You are encouraged to be concise and to the point whilst providing all the necessary and relevant information.

Throughout the form there are grey boxes, in order to answer the question or provide information you should simply click on the box and begin typing or select from the drop-down menu. Questions do have character limits and when the text has reached the character limit you will not be able to add any further information and the text must be edited to fit within the character limit.

Any graphs, diagrams or supporting evidence that you are providing to support your application should be attached to your submission.

## 1.1 Summary Information, Contact Details and Business Information

The initial section of the application asks you to provide details about your organisation.

Section/Field	Guidance
Summary Information	
Names of business	Provide the name of the lead applicant business
Project Title	A brief title that can be used to summarise the project
Estimated start date	Select the month you would propose to start work assuming successful funding
Project duration	Enter the expected duration in months, taking into consideration the maximum project length of 24 months
Total Project Costs	This figure should match the figure calculated in the CCUS Call Finance Form. It should be the total value of the project including all eligible costs.
Company contribution	This is the amount of total eligible project costs that you will be paying from your own resources/private sector investment into the project.



<b>Section/Field</b>	<b>Guidance</b>
BEIS Grant Applied for	This is the amount you will be asking for from BEIS. You should ensure that you do not request a grant higher than the maximum allowed, taking into account all public-sector funding for the project.
TRL at start of project	Select the TRL from the drop-down menu that most accurately represents your technology at the start of the project. A list of TRL definitions are provided in Appendix 2.
TRL at end of project	Select the TRL from the drop-down menu that most accurately represents where your technology will be at the end of the project. A list of TRL definitions are provided in Appendix 2.
Contact Details	Name and details of the person who will be the main point of contact for the application process
Organisation Name	Provide the full registered name of the organisation applying for funding
Business Type	Please select from the drop-down menu
Number of employees (including directors)	Number of staff in your organisation (this will help us confirm the nature of your company)

## Part 2 - Completion of the Application and Finance Forms

Section/Field	Guidance
Turnover (in most recent annual accounts)	Please provide your most recent turnover figure from annual accounts and the date of those accounts
Balance Sheet Total (total assets net of depreciation)	Please provide your most recent balance sheet total (total assets net of depreciation) and the date of the calculation.
Business maturity	Please enter the age of the business since its formal formation, this includes any periods of dormancy with Companies House.
Does the business have a parent company?	We need to understand if there any significant shareholders in your business. The parent company details should be provided in the Parent Company details section.
How is your business currently funded?	Please select all the types of funding that your company has received to date
Which State Aid article are you applying under?	<p>You must select one of the General Block Exemption State Aid articles from the drop-down list. The options are:</p> <ul style="list-style-type: none"> <li>• Article 22 – Small Innovative Start Up</li> <li>• Article 25 – Industrial Research</li> <li>• Article 25 – Experimental Development</li> <li>• Article 25 – Feasibility Studies</li> <li>• Article 26 – Research Infrastructures</li> </ul>

Section/Field	Guidance
	<p>For more details on the State Aid rules and requirements, see section 5 of these Guidance Notes (above). You must indicate that you comply with the financial obligation rules by providing the relevant information.</p> <p>N.B. You must select one of the State Aid options and adhere to its requirements or you will not pass the Eligibility Check.</p>
<p>If you selected a) Article 22, you must have spent more than 10% of operating expenses on R&amp;D in one of the last 3 years. Please provide details below.</p>	<p>If you are applying under Article 22, then you must be a small organisation, in existence for under 5 years and have spent more than 10% of operating expenses on R&amp;D in one of the last 3 years. Please complete the table to demonstrate that you meet this requirement.</p> <p>N.B. If you have selected Article 22 and cannot demonstrate the 10% R&amp;D expenditure in one of the last three years, you will not pass the Eligibility Check.</p>
<p>If you are applying under Article 25, is this a collaborative project?</p>	<p>If you are applying collaboratively, please provide details of the partner organisations in the CCUS Call Partner Details Form.</p> <p>If you are applying as a collaboration you must also submit a copy of formal Heads of Terms agreed between all the collaborators.</p> <p>Prior to the issuing of a Grant Offer Letter, you will have to submit to BEIS a copy of the collaboration or joint venture agreement that you propose to work under. You should be aware that BEIS will not issue a Grant Offer Letter until they have seen, reviewed and approved a final draft of this agreement.</p>

<b>Section/Field</b>	<b>Guidance</b>
	Sub-contracting work to a third party does not classify as a collaboration.
Parent Company Details	If you have a parent company, or are more than 25% owned by another enterprise, you must provide the details of that enterprise here. The details of the relationship between SME eligibility and linked / partner enterprises is set out in Annex 1 of the General Block Exemption Regulation. <sup>16</sup>

---

<sup>16</sup> See Annex 1 of the General Block Exemption Regulation: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

### 1.2 Project Description and Company Status

This section of the application asks you to provide an initial summary of your project and company as an introduction for the assessors.

Section/Field	Guidance
Project Description and Company Status	<p>This should be a summary description of the project and your company which should set the scene for the assessors and introduce your company and proposed project. You should use language that can be understood by people without specialist knowledge or expertise.</p> <p>This question is not scored but will be used by assessors to gain a high-level understanding of the project before they start their detailed assessment.</p>

1.3 Section 1 – Innovation (questions 1 and 2)

This section focuses on the CCUS innovation that you are looking to develop, the cost reduction potential and its impact on the widespread deployment of CCUS.

Section/Field	Guidance
<p><b>Question 1:</b></p> <ul style="list-style-type: none"> <li>• <b>What is the cost reduction potential of the innovation?</b></li> <li>• Describe the technology that is the focus of the innovation, and how through this project the cost of deploying CCUS at a scale will be meaningfully reduced.</li> <li>• Describe the problem that your innovation overcomes and the customer value proposition. Describe the competing solutions/technologies to your innovation.</li> <li>• Describe the Unique Selling Point of your innovation that enables you to differentiate it from the competition (see Section 1B).</li> </ul>	<p>You should describe the technology for which you are seeking funding. This description can be supported by a photograph or schematic as an additional attachment if necessary. The description must be sufficient for the assessors to understand the technology and how it works.</p> <p>You should describe:</p> <ul style="list-style-type: none"> <li>• The stage of your technology and justify the TRL number selected earlier (TRL levels indicate the level of maturity of the product or process. Using the guidance in Appendix 2 of this document, you should choose the TRL you feel most appropriate to the current state of your technology. The TRL chosen should be supported by the information provided.);</li> <li>• What work has been done to date, (lab or bench demos, component tests, development prototypes, engineering or operational prototypes) and over what timescale; and</li> <li>• The latest position with the innovation and where it is located. If you were showing the innovation to us today, what would we see?</li> </ul> <p>You should outline any results that you have had to date and any sources of technology you have used. You should demonstrate the level of reliability and current effective run time (if appropriate) of your innovation.</p>

Section/Field	Guidance
<ul style="list-style-type: none"> <li>Describe if there are additional non-cost aspects (e.g. technology maturity, analogous industrial experience, improved HSE, etc.) that reduce the risk of deploying your technology.</li> <li>Describe what independent justification/market research you have to substantiate all the above information.</li> <li>N.B. Please describe the impact your innovation has on a quicker and more widespread deployment of CCUS in question 2.</li> </ul>	<p>You should describe the potential applications for the technology, the problems which it overcomes and explain the Unique Selling Point for your technology. You should set out the customer value proposition for your technology.</p> <p>You should describe the evidence you have which substantiates your belief that the intended work is innovative – this should not be based on your opinion alone. Evidence could include the results of patent searches, competitor analyses, literature surveys, etc. and should demonstrate research into and knowledge of the potential market.</p> <p>If applicable, you also should briefly outline your own background IPR, as related to the project. You should also include any data that you may already have collected that demonstrates the performance of the innovation.</p> <p>You should describe how the innovation will achieve meaningful cost reduction when CCUS is deployed at scale. Claims regarding your technology must be evidenced by providing the performance and other findings from proof of concept or prototyping, techno-economic modelling, or work with supply chain companies to demonstrate how cost reductions will be achieved, etc.</p> <p>You should explain any factors other than cost that could reduce the risk and increase the appeal of deploying your technology.</p> <p>You should explain what the competing solutions to the problem are and what differentiates your innovation from these and why this would be a more attractive solution. Please compare the potential of your innovation against the CCUS benchmarking done by BEIS/Wood<sup>17</sup>.</p>

<sup>17</sup> Assessing the Cost Reduction Potential and Competitiveness of Novel (Next Generation) UK Carbon Capture Technology – Benchmarking State-of-the-art and Next Generation Technologies, Wood, July 2018

Section/Field	Guidance
	<p>You should provide evidence for your statements, including any independent corroboration, about the addressable market for project outcomes and set out any assumptions you have made.</p>
<p><b>Question 1B:</b></p> <ul style="list-style-type: none"> <li>• <b>Cost and Performance</b></li> </ul>	<p>You should complete the table setting out the following specifics at the current time, as they are expected to be at the end of the project and as you expect them to be within five years from now:</p> <ul style="list-style-type: none"> <li>• The unit size of the innovation</li> <li>• The performance of the innovation (please use a standard industry performance metric, e.g. GJ to capture and compress a tonne of CO<sub>2</sub>)</li> <li>• Estimated cost to capture and sequester a tonne of CO<sub>2</sub></li> </ul> <p>You should provide supporting evidence to back up the cost and performance pathway anticipated and provide a comparison with existing/competing technologies.</p> <p>You should provide calculations to support your claims. Explain and justify any assumptions you have made.</p>
<p><b>Question 1C:</b></p> <ul style="list-style-type: none"> <li>• <b>How can you justify that your innovation will achieve the cost reduction potential described above?</b></li> <li>• Describe what makes you believe that the cost reduction</li> </ul>	<p>You should explain how and why the cost reduction potential of your innovation will be achieved. You should explore what needs to happen to achieve this, the risks that may prevent it and how these risks might be mitigated. You need to justify that the cost reductions can be achieved.</p> <p>Your answer should reflect back on the figures provided in 1B and you should demonstrate what makes the potential cost reduction possible.</p>



Section/Field	Guidance
<p>potential of the innovation can be realised.</p> <ul style="list-style-type: none"> <li>Describe the supporting evidence you have that backs up this argument.</li> <li>Describe how the numbers show in 1B (above) can be achieved.</li> </ul>	<p>You should provide evidence for your statements, including any independent corroboration, and set out any assumptions you have made and their rationale. Supporting evidence accompanying your application should be summarised here and you should reference specific sections of supporting evidence only, as you must not assume that an assessor will be able to read all supporting documents that are submitted.</p>
<p><b>Question 2.</b></p> <ul style="list-style-type: none"> <li><b>How will the innovation lead to a quicker more widespread deployment of CCUS to meet the ambition of the Paris Agreement?</b></li> <li>Describe the unique impact your innovation will have on a quicker more widespread deployment of CCUS.</li> <li>Describe when the innovation will be ready for deployment, and what preceding scale-up steps will be required.</li> </ul>	<p>Building on your description of the cost reduction potential of your innovation, please describe what might be the unique impact your innovation will have on quicker, more widespread deployment of CCUS.</p> <p>You must explain the potential for deployment of your technology. You should outline upcoming CCUS projects, such as the feasibility working being done on SaskPower’s Shand power station or other similar projects, where there might be an early opportunity for your innovation to be used or to make an impact.</p> <p>In relation to these early deployment opportunities, you should describe how long it will take for your technology to be deployable, and the likely scale-up demonstrations that would be needed for future customers to have sufficient confidence to consider installing your innovation.</p>

Section/Field	Guidance
<ul style="list-style-type: none"> <li>Describe if the technology is applicable to multiple CCUS applications and end uses, and if can be retrofitted to existing processes.</li> <li>Following the success of the project describe what level of early CCUS deployment might be achievable.</li> <li>Describe what adoption rates might be achieved, and how learning can meaningfully affect widescale deployment of CCUS.</li> <li>Describe what specific cost reduction can be achieved through this widespread deployment.</li> </ul>	<p>If your technology is applicable to multiple CCUS applications, you should describe these opportunities, their timings, and how they complement each other. You should explain whether your innovation can or cannot be retrofitted to existing processes and describe what this retrofitting would entail. If your technology has other non-CCUS applications that offer attractive alternative target markets, you should describe this in question 3.</p> <p>Based on your estimate of CCUS costs what level of deployment worldwide might be possible, and over what timescale? Using the description of the competitive landscape in question 1, what proportion of these early deployment opportunities might you be successful in winning. You should justify why you believe your estimate of target sales is robust.</p> <p>You should describe the learning (and cost reduction) opportunities that might be achievable, if your innovation is successful in these early deployment opportunities and through widespread deployment. You should provide evidence to support your claims, for example has the estimate taken into account the views of potential supply chain partners, or been independently verified by a third party?</p>

## Part 2 - Completion of the Application and Finance Forms

Assessor's questions to consider:	Maximum score available
<p><b>Gateway question: Is the innovation technically feasible?</b></p> <p>Is the underlying technology technically feasible (i.e. does it break the laws of physics, etc.)?</p>	N/A
<p><b>Question 1A: What is the cost reduction potential of the innovation?</b></p> <p>To what extent does the application demonstrate how the cost of deploying CCUS can be meaningfully reduced?</p> <p>How strong is the case for realising these potential cost reductions?</p> <p>Does the venture demonstrate an understanding of the competitive landscape?</p> <p>How the innovation compare to competitor solutions?</p> <p>Have additional benefits, other than cost reduction, been identified?</p> <p>How robust is the case for benefits will appeal to customers and will help to generate value?</p> <p>To what extent have the claims set out been substantiated?</p>	15
<p><b>Question 1B: How realistic are the cost reduction and performance improvements of the technology?</b></p> <p>To what extent are the cost reductions and performance improvements of the technology attractive?</p> <p>Is there a clear progression of the benefits of the technology through time?</p> <p>How clearly does the application explain how the cost reductions have been calculated?</p> <p>How robust are the calculations and description of the cost reduction and performance improvements?</p>	5

## Part 2 - Completion of the Application and Finance Forms

<p><b>Question 1C: How robust is the cost reduction potential of the innovation?</b></p> <p>To what extent does the application for proposed technology demonstrate that the proposed cost reductions are likely to be achieved?</p> <p>How strong is the case for realising these potential cost reductions?</p> <p>To what extent are the cost reductions reliant upon actions of other players and how likely are these actions to occur?</p> <p>How robust is the case for benefits will appeal to customers and will help to generate the proposed cost reductions?</p> <p>To what extent have the claims set out been substantiated?</p>	10
<p><b>Question 2: How will the innovation lead to a quicker more widespread deployment of CCUS to meet the ambition of the Paris Agreement?</b></p> <p>How will the innovation lead to a quicker more widespread deployment to CCUS to meet the ambition of the Paris Agreement?</p> <p>Are the stages of the technology's deployment well understood?</p> <p>What is the time of innovation to market?</p> <p>Is the technology expected to be widely deployable?</p> <p>To what extent is an early level of CCUS deployment achievable?</p> <p>Is the learning and associated cost reduction from early deployment credible?</p> <p>What are the potential impacts of widespread deployment?</p> <p>What is the chance of success of market adoption?</p>	20

**1.4 Section 3 – Business Model and Route to Market (question 3)**

This section focuses on the business opportunity that you believe exists, the potential return on investment and the products, processes or outcomes from the project and how you plan to derive value from them, and your competitors.

Section/Field	Guidance
<p><b>Question 3.</b>  <b>How will the outcomes for the project be commercially exploited?</b></p> <ul style="list-style-type: none"> <li>• Describe the route for the IP for your technology to be commercialised.</li> <li>• Describe the business model that your company will use to generate value from the innovation (i.e. how will you generate revenues?).</li> <li>• Describe the likely route to market for your innovation.</li> <li>• Describe the first addressable market for your innovation, including the size of this market.</li> <li>• Describe the specific market sub-sectors that will be the</li> </ul>	<p>You should outline the business opportunity that you have identified.</p> <p>You should describe the size of the market opportunities that this project might open up, including details of:</p> <ul style="list-style-type: none"> <li>• Current nature of the specific market(s) at which the project is targeted;</li> <li>• The dynamics of this market including quantifying its current size, value, actual and predicted growth rates;</li> </ul> <p>For highly innovative projects, where the market may be unexplored, you should explain:</p> <ul style="list-style-type: none"> <li>• What its size might be, national/global</li> <li>• How the project will seek to explore the market potential</li> <li>• What sources you have used to reassure yourself that sufficient demand exists to justify the investment</li> </ul> <p>You should describe the business model and route to market and how this will generate value / revenue. You should explain what you need to do to address the market described in the previous question successfully, within the desired timeframe and cost.</p> <p>Applicants should list the potential exploitable outcomes of the project such as:</p>

Section/Field	Guidance
<p>initial target markets for your innovation in the first three years of commercialisation.</p> <ul style="list-style-type: none"> <li>• Describe if your innovation is applicable to other non-CCUS target markets.</li> <li>• Describe and quantify the potential sales pipeline for your business based on the market deployment described in this section and question 4.</li> </ul>	<ul style="list-style-type: none"> <li>• Products or services</li> <li>• Processes</li> <li>• Applications</li> </ul> <p>You should describe how these outcomes will be exploited including where applicable protection of intellectual property rights, changes to business models and business processes and other methods of exploitation and protection.</p> <p>You should explain your anticipated routes to market, highlighting the initial one(s) and outline your strategy for developing market share. You should explain the projected market share for the project outcome, with justification in the light of any potential competitors.</p> <p>If you have customers or potential customers already in place these should be identified and evidence of their support provided.</p> <p>In addition to the immediate practical exploitation of the outcomes, you should identify and quantify the likely impacts of a successful project on your business and indicate the timelines over which these impacts will be realised.</p> <p>You should provide a potential sales forecast based on the target markets identified previously, showing both sales and revenues.</p> <p>For highly innovative projects, where the market may be unexplored, you should explain what the route to market could or might be.</p>

Section/Field	Guidance
	You should provide evidence for your statements, including any independent corroboration, and set out any assumptions you have made.

Assessor's questions to consider:	Maximum score available
<p><b>Question 3: To what extent is the proposed commercial exploitation of the outcomes for the project realistic?</b></p> <p>Has a route to market and business model been identified?</p> <p>Is the understanding and description of the business model and proposed route to market commensurate with the stage of the technology/project and in your view, is it realistic/does it make sense? [i.e. later stage projects (TRL6+) are expected to have a better developed understanding of their proposed route to market. TRL3-5 projects may still be working.]</p> <p>How robust is the case for exploiting the project outcomes to generate value?</p> <p>Does the applicant demonstrate a realistic understanding of market potential and future sales?</p> <p>How strong are industry / supply chain relationships? Are these at a level appropriate to the development of the innovation/applicant?</p> <p>Are the plans to exploit the outcomes of the project realistic?</p> <p>Does the innovation have other uses beyond CCUS application that will offer alternative target markets?</p> <p>Has the applicant clearly identified and understood their target market?</p>	10

Assessor's questions to consider:	Maximum score available
<p>For early TRLs (3-5) they may not be certain which markets will be more appropriate but should be able to describe an anticipated target market.</p> <p>For later TRLs (6-9) justification for market selection would be expected.</p> <p>Is the market opportunity large enough to support a business?</p> <p>Does the applicant demonstrate an understanding of the customer value proposition appropriate to its TRL level?</p> <p>How strong is the evidence for market potential?</p>	

### 1.5 Section 4 - Project Plans (questions 4 and 5)

This section focuses on what work you plan to do during your project, the key milestones and timings, risks associated with the project and how you propose to manage the project. A project Gantt chart (or similar) should also be submitted as a separate file. The details provided below should match what is provided in the Gantt chart.

Any data or references that might help to support your answers that cannot be included in the application form should be provided to BEIS as a separate attachment. These may include for example tables of data, diagrams.

Section/Field	Guidance
<p><b>Question 4.</b> <b>Describe the Scope of Work, key work packages and milestones for the</b></p>	<p>You should describe the programme of work you intend to undertake with the funding.</p> <p>You should provide an overview of the technical approach you propose to take including the main objectives including an estimate of the minimum level of technical or cost</p>



Section/Field	Guidance
<p><b>project.</b></p> <ul style="list-style-type: none"> <li>Describe the technical approach which is being taken to develop and demonstrate the technology.</li> <li>Include an explanation as to why this is the most suitable technical approach.</li> <li>List other individuals / organisations that you plan to contract/work with as part of delivering this project.</li> <li>Describe how the components you are proposing to develop are different from those already commercially available.</li> <li>Describe where the innovation will be at the end of the project and</li> </ul>	<p>performance that the proposed project needs to demonstrate (how big a step is this?)</p> <p>As part of this you should include alternate R&amp;D strategies that could be used and explain why the approach you have chosen will provide better outcomes.</p> <p>The timeliness and novelty of the research aspects of the project should be highlighted and explained in an industrial/business context.</p> <p>Identify the key milestones of the project and any interdependencies between the various work packages. Applicants should also outline the key deliverables for the project.</p> <p>Identify any go/no-go decision points in the project (e.g. dependencies on achieving particular performance milestones or component solutions).</p> <p>You should demonstrate that your project is well planned, realistically costed, feasible within the timeframe, and that there are the skills in place or a plan to obtain them.</p> <p>You should identify who will be carrying activities out (including any collaborators, customers, suppliers, subcontractors, research organisations, certifying bodies, etc.) and outlining the resource and management requirements and highlighting any sub-contracted work and how you propose to manage the project.</p> <p>This includes demonstrating sufficient resource commitment and capability to undertake the project, with clear management reporting lines identified.</p> <p>TRL levels indicate the level of maturity of the product or process. Using the guidance in Appendix 2,</p>

Section/Field	Guidance
<p>state what TRL you expect to have reached.</p>	<p>you should choose the TRL they feel will be most appropriate to your innovation at the end of the proposed project.</p> <p>You should justify the TRL which you have selected.</p> <p>You should demonstrate the expected level of reliability and effective run time (if appropriate) of your innovation by the end of the project.</p> <p>If you were showing the innovation to us at the end of the project, what would we see?</p> <p>You should provide evidence for your statements, including any independent corroboration, and set out any assumptions you have made.</p>
<p><b>Question 5.</b> <b>What are the project success factors, risks and management for these?</b></p> <ul style="list-style-type: none"> <li>• Describe the top three critical success factors for this project.</li> <li>• Describe how these success factors will be measured.</li> <li>• Describe the top three challenges to delivering this project.</li> <li>• Please provide a risk</li> </ul>	<p>You should describe the critical success factors for your project. You should explain why these are important, how you will measure them and how they will be managed during the project.</p> <p>You should describe the main challenges to delivering the project, which should link to the risk assessment description.</p> <p>BEIS recognises that projects of this type are inherently risky. However, it seeks assurance that the projects it funds have adequate arrangements for managing this risk. Applicants should consider all risks: technical, commercial, and environmental. Your answer should focus on the arrangements for managing and mitigating risk as follows:</p> <p>Identify the key risks and uncertainties for the project and provide a detailed risk analysis for the project content and approach, including the operational, commercial, technical, personnel, Health and Safety and regulatory risks, as well as any other uncertainties (e.g. ethical issues) associated with the project.</p> <p>You should initially decide whether each described risk can be accepted, transferred or mitigated. The</p>

Section/Field	Guidance
<p>register covering: key commercial, regulatory, operational, environmental risks including how these will be monitored and managed</p> <ul style="list-style-type: none"> <li>Summarise the key risks associated with the project and how these will be monitored and managed.</li> </ul>	<p>main risks should then be rated as High/Medium/Low (H/M/L) for both impact and probability. State how the project would mitigate these key risks.</p> <p>Identify key project management tools and mechanisms that will be implemented to provide confidence that sufficient control will be in place to minimise operational risk and, therefore, promote successful project delivery. This should include the arrangements for managing any significant sub-contractors.</p> <p>In addition to the basic risk register template provided in the application form, you may provide a separate Risk Register for your project. You should consider risks and issues of the following types:</p> <ul style="list-style-type: none"> <li>Operational</li> <li>Commercial</li> <li>Technical</li> <li>Personnel / Health and Safety</li> <li>Regulatory</li> </ul>

Assessor's questions to consider:	Maximum score available
<p><b>Question 4: How appropriate is the technical approach for the demonstration and development of the technology? Are the milestones realistic?</b></p> <p>How appropriate is the technical approach for the demonstration and development of the technology?</p> <p>Are the work packages and milestones realistic? (E.g. is it well planned, thought through, costed, under/over ambitious for the timeframe, skills in place or to be recruited).</p> <p>Will the deliverables demonstrate tangible progress/value inflection?</p> <p>Given the stage of the technology development and the context of what the project wants to achieve, give your view of the strength of the industrial/partner relationships that are mentioned in the application (e.g. is there indication that they have the necessary relationships for this next stage of development)?</p> <p>Is the outcome TRL chosen commensurate with the activities and outcomes of the project?</p>	10
<p><b>Question 5: How well have the critical success factors and the management of risk been considered and evidenced?</b></p> <p>Based on your experience, does the project scope look feasible and what are the key risks for project delivery? Please score your view of relative delivery risk</p> <p>How well does the venture recognise the critical success factors and risks for the project?</p> <p>How well has the management of success factors and risks been evidenced?</p>	10

### 1.6 Section 5 - Project Funding (questions 6 and 7)

This section focuses on the finances of the project and the justification for the funding that you require. The 2018 Call for CCUS Innovation Finance Form should also be downloaded, completed and submitted as part of the application. The numbers provided in the application form should match those within the Finance Form.

Any data or references that might help to support your answers that cannot be included in the application form should be provided to BEIS as a separate attachment. These may include for example tables of data, and diagrams.

N.B. Although Question 6 covers an assessment of the proposed costs and value for money of the project, these will be reviewed for a final time as part of the preparation for issuing a Grant Offer Letter, if you are provisionally awarded a grant. However, the costs should be your best current view of the budget necessary to deliver the proposed project.

Section/Field	Guidance
Total company contribution	This is the amount of total eligible project costs that you (and any partners / collaborators) will be paying from your own resources/private sector investment into the project.
Source of company contribution	Please state the source of your company contribution to the total costs (your match funding). If you have partners / collaborators, include their contributions here as well.
Amount of BEIS grant applied for	This is the amount you will be asking for from BEIS. You should ensure that you do not request a grant higher than the maximum allowed, taking into account all public-sector funding for the project.
Other Public-sector funding applied for	Please provide full details of other funding that you are currently applying for or have already applied for or received in relation to this particular project. This data is important as other public-sector support is counted as part of the grant you can receive for the project and total state aids contribution.

## Part 2 - Completion of the Application and Finance Forms

Section/Field	Guidance
	Do not include grants that have been used to reach this point in the development process and are now completed.
Total project value	Please add total company contribution, amount of BEIS grant applied for and other public-sector funding applied for to give the total value of the project
Grant funding requested as a percentage of total funding	Input percentage calculated in the Finance Form.  N.B. This figure must be compliant with the relevant State Aid Article under which you are complying.
Project Start Date and End Date	Please indicate when (subject to approval) you would expect to be able to start your project, and when you expect it to complete. Please be aware that there are restrictions on project length and make sure your project completes within the maximum time allowed.  The start date should only be considered as an indication. Should you start your project before final approval any costs will be incurred at your own risk, will not be eligible for grant, and will not be included in project costs you can claim against.

Section/Field	Guidance
<p><b>Question 6. Provide a summary of the main areas of spend within the project and why they reflect fair market value.</b></p>	<p>Please provide a narrative description of the anticipated project costs, making clear the level of contribution from the business and the level of funding required from BEIS.</p> <p>This should match the details provided at the start of the application form as well as within the 2018 Call for CCUS Innovation Finance Form, with any supporting information and explanation provided in this section of the application form. This is the section where you can describe the breakdown of costs between your organisation and any partners / collaborators.</p> <p>You should attempt to demonstrate that:</p> <ul style="list-style-type: none"> <li>• The budget you are proposing is realistic for the scale and complexity of the project</li> <li>• If applicable financial commitment from other sources is demonstrated for the balance of the project costs</li> <li>• The budget breakdown is realistic and consistent with what is being proposed</li> <li>• The spend profile matches the work packages and project plan</li> <li>• The spend reflect fair market value</li> </ul> <p>Guidance on eligible costs is provided in Appendix 1.</p>
<p><b>Question 7. Please provide a summary of your funding and spending history on the innovation to date.</b></p>	<p>You must provide a clear breakdown of previous funding and spend on your innovation, including any grants or awards received, and how these have been deployed. You should differentiate and value different types of funding / investment.</p> <p>You will need to demonstrate the added value of public funding for your proposed project. To demonstrate this, you will need to provide evidence that:</p>

Section/Field	Guidance
<ul style="list-style-type: none"> <li>• Provide the total invested in the innovation to date, itemised by category e.g.: Grant funding, own cash invested, external funding received/invested, investment in sweat equity i.e. personnel resource etc.</li> <li>• Provide a high-level breakdown of how funds have been spent to date.</li> <li>• Describe the other sources that you have approached to raise funds for this project. Name other organisations and companies that you have contacted. Please list all grant funding received to date and currently being</li> </ul>	<ul style="list-style-type: none"> <li>• There will be an increase in your total Research &amp; Development spend on low carbon technologies in the UK; and either:               <ul style="list-style-type: none"> <li>○ Why you are not able to wholly fund the project from within your business's own resources; or</li> <li>○ How BEIS's funding would allow you to undertake the project differently or more quickly and why this would be beneficial to the UK.</li> </ul> </li> </ul> <p>Please provide full details of other public funding that you have received, including but not limited to grants and investments received to date in relation to this, or related, projects. Related projects means any projects using resources or assets (including intellectual property) which are being used by this project.</p> <p>You must include any grants that have been used to reach this point in the development process and are now completed or close to completion and any for which an application is underway or in progress.</p> <p>You should describe the case for public funding for your innovation. This should describe other sources of funding you have explored to fund this project and the outcome of these discussions. Public funding should not be the first option for your project.</p>



<b>Section/Field</b>	<b>Guidance</b>
applied for include funding body, project/activity funded, amount, date, organisations and companies that you have contacted.	

Assessor's questions to consider:	Maximum score available
<p><b>Question 6: How appropriate is the proposal financially? Is the overall budget realistic and justified in terms of the aims and methods proposed? Do the project costs provide fair market value?</b></p> <p>How well thought out and appropriate are the project financial plans?</p> <p>Is the overall budget realistic in terms of the aims and methods proposed?</p> <p>Is the project's match funding realistic?</p>	5
<p><b>Question 7: To what extent has the applicant demonstrated value for money in previous funding? How strong is the case for added value of public funding?</b></p> <p>Has appropriate progress been demonstrated in the innovation given the level of funding received to date?</p> <p>Is the case for public funding justified?</p> <p>How strong is the case for public funding?</p> <p>Have alternative sources of funding been explored and explained?</p> <p>What added value does public funding bring to the development of the innovation?</p> <p>What added value to UK PLC would public funding bring?</p>	5

**1.6 Section 6 - Experience and Skills (question 8)**

This section focuses on the experiences, skills and track record of your business and its personnel.

Section/Field	Guidance
<p><b>Question 8.</b></p> <p><b>Please summarise the company's relevant experience in delivering projects and evidence relevant experience of the key personnel involved in the project.</b></p> <p><b>Please demonstrate that you have all the necessary industry and supply chain relationships in place to deliver this project.</b></p>	<p>You should highlight the experience of your management and delivery team and key personnel within your organisation (and any partner organisations) that are involved in the project. This should focus on experience in project management, technology commercialisation, business development and raising finance (i.e. loans, equity finance).</p> <p>You should detail any track record individuals involved or your business has in undertaking and exploiting the results of research and development projects, to show your capability to develop and exploit the technology.</p> <p>If you feel the incubation support aspect of the scheme might be able to provide additional skills or knowledge necessary for the successful completion of the project you should highlight these in this section.</p> <p>You should detail and explain industry or supply chain relationships which are necessary or which will help you to deliver this project.</p> <p>You should demonstrate sufficient resource commitment and capability to undertake the project, as described in Question 6 and your Gantt Chart, with clear management reporting lines identified.</p>

Assessor's questions to consider:	Maximum score available
<p><b>Question 8: To what extent does the organisation and delivery team have the right skills and experience to deliver the project's intended benefits to time and quality? Can any skills gaps be addressed by the incubation support?</b></p> <p>Have all the partners / sub-contractors been described?</p> <p>Has the delivery team been described?</p> <p>Are there any skills gaps, if so, is the applicant aware of them?</p> <p>How will any skills gaps be addressed?</p> <p>Are industry / supply chain relationships adequate to deliver the proposed project?</p> <p>N.B. please consider within context of the TRL of venture and expected team experience/size for a venture of that TRL.</p>	10

### Section 7 – Public Statement

This section provides a public statement that BEIS can use for publicity purposes.

Section/Field	Guidance
Public statement	<p>This should be a brief summary of the project which should describe your company and project. You should use language that can be understood by people without specialist knowledge or expertise. It should explain why the project is innovative and describe the key aims and objectives. BEIS reserves the right to amend the description before publication if necessary, but will consult you about any changes.</p> <p>This should not contain reference to any intellectual property as this description will be made available in the public domain, if the application is successful.</p> <p>This question is not scored.</p>

## 2. Completion of the 2018 Call for CCUS Finance Form

You will need to complete the financial details in the Financial Summary section of the application form and also complete the 2018 Call for CCUS Innovation Finance Form. The information in both sections should be consistent.

You should only submit one finance form for the project, which should combine the costs of all project partners. Within the finance form and the application, you should make clear how funds will be split between partners and that these splits comply with the relevant State Aid rules.

The 2018 Call for CCUS Innovation Finance Form consists of 8 worksheets:

Summary

Labour Costs

Material Costs

Capital equipment costs

Sub-contract costs

Travel and subsistence costs

Other costs

Project quarterly breakdown

Milestone costs breakdown

Each of these sheets can be accessed by using the scroll bar at the bottom of the worksheets.

Within the spread-sheet there are boxes that are shaded grey, these boxes are auto-calculating and can only be altered by changing data in the manual entry boxes. All white boxes are manual entry boxes into which data can be input.

Guidance on eligible costs is provided in Appendix 1 of these guidance notes.

Guidance on what needs to be entered in some fields is provided within the sheet when you click on the box.

Worksheets only need to be completed if you have costs in those categories, so for example, if your project has no planned capital equipment or sub-contract costs, the form will assume these entries are £0 and calculate without them.

### **2.1 Project Quarterly Breakdown Worksheet**

This worksheet provides the breakdown of all costs across the duration of the project. It represents the spending profile you expect for your project. In entering this information, you should ensure that the profile is consistent with the timings of the various work packages you are proposing within the project plan.

You must ensure that the total, in the spreadsheet, for each category matches the total that has been calculated on the individual worksheets.

## Appendix 1 – Eligible Costs

In addition to the requirements of the EU Block Exemption Regulation, BEIS will only provide the grant to cover eligible costs incurred and defrayed in the period between acceptance of the BEIS grant and the deadline specified in the grant offer letter for completion of the project.

The definition of eligible costs includes the applicant's own costs, eligible costs incurred by consortium members and eligible costs incurred by companies connected to any of these. The cost of work contracted to connected companies, to consortium members or to companies connected to consortium members should be on the basis of eligible costs.

Costs must be denominated in GB pounds. Applicants should indicate where conversion has been made to GB pounds from other currencies and indicate the rate and assumptions used.

### List of Eligible Costs

Under Article 25 of the EU Block Exemption Regulation<sup>18</sup>, eligible costs for industrial research and experimental development are defined as the following:

- a) Personnel costs: researchers, technicians and other supporting staff to the extent employed on the project;
- b) Costs of instruments and equipment to the extent and for the period used for the project. Where such instruments and equipment are not used for their full life for the project, only the depreciation costs corresponding to the life of the project, as calculated on the basis of generally accepted accounting principles are considered as eligible;
- c) Costs for of buildings and land, to the extent and for the duration period used for the project. With regard to buildings, only the depreciation costs corresponding to the life of the project, as calculated on the basis of generally accepted accounting principles are considered as eligible. For land, costs of commercial transfer or actually incurred capital costs are eligible;
- d) Costs of contractual research, knowledge and patents bought or licensed from outside sources at arm's length conditions, as well as costs of consultancy and equivalent services used exclusively for the project;

---

<sup>18</sup> <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>



- e) Additional overheads and other operating expenses, including costs of materials, supplies and similar products, incurred directly as a result of the project.

Under article 25 the eligible cost for feasibility studies shall be the costs of the study.

Under Article 26 of the EU Block Exemption regulation, eligible costs shall be the investment cost of the intangible and tangible assets.

### List of Ineligible Costs

Under no circumstances can the grant be claimed or used:

For activities of a political or exclusively religious nature;

In respect of costs reimbursed or to be reimbursed by funding from other public authorities or from the private sector;

In connection with the receipt of contributions in kind<sup>19</sup> (a contribution in goods or services as opposed to money);

To cover interest payments (including service charge payments for finance leases);

For the giving of gifts to individuals, other than promotional items with a value no more than £10 a year to any one individual;

For entertaining (entertaining for this purpose means anything that would be a taxable benefit to the person being entertained, according to current UK tax regulations);

To pay statutory fines, criminal fines or penalties; or

In respect of VAT that you are able to claim from HM Revenue and Customs.

### Staff Costs

BEIS would not normally expect to see contractors in key posts, e.g. CEO, FD, etc. Exceptionally, where BEIS is willing to fund a project which includes contractors in key posts, the day rate attributable to the project must be agreed with BEIS at the outset and cannot be varied without written agreement.

---

<sup>19</sup> BEIS generally doesn't accept contributions in kind as match funding, as these are ascribed a notional cost. However, where money changes hands (e.g. for the time of managers or experts who are paid by yourselves or another partner) this would not be considered as in-kind match funding.

# Appendix 2 – Technology Readiness Levels (TRLs)

Technology Readiness Levels are an indication of the maturity stage of development of particular technology on its way to being developed for a particular application or product. Below are some broad definitions of the TRLs

## **Fundamental Research (guideline)**

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.

## **Industrial Research (guideline)**

TRL 3 – Proof of technical concept

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).

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 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.

### TRL 4 – Lab and Test Bench Demonstrations

Lab and Test Bench Demos of sub-systems & key components. Modelling & experimentation with parameters representing future conditions. Application proof-of-concept

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 will be required, the feasibility of these will be investigated at this stage.

### TRL 5 – Development Prototypes

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.

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.

### **Experimental Development (guideline)**

TRL 6 – Engineering or  
Demonstration Prototype

Full-scale system in representative conditions - Engineering Prototype. Representative full-scale prototype system is tested in a relevant environment. Proof-of-application.

Critical cost factors and new manufacturing capability are refined at this stage e.g. use of cost effective materials, demonstration that 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).

## Appendix 2 – Technology Readiness Levels (TRLs)

---

### TRL 7 – Operational Prototype (Alpha Product)

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.

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 likely to be experienced in the “user-environment” etc.

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.

### TRL 8 – Production Prototype (saleable Beta product)

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.

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)

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 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.

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.

### TRL 9 – Marketable Product

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.



© Crown copyright 2018

**Department of Business, Energy and Industrial Strategy**

1 Victoria Street, London SW1H 0ET

[www.gov.uk/BEIS](http://www.gov.uk/BEIS)