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| Phase 2 SBRI Hydrogen Supply Competition |
| Application Form  (TRN 2039/09/2019) |
| 6 | | |
| August 2019 |

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| Phase 2 Hydrogen Supply Competition |
| (TRN 2039/09/2019) |
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# **BEIS Phase 2 Hydrogen Supply Competition (TRN 2039/09/2019) – Application Form**

## **Application Guidance**

Further information and guidance about the Hydrogen Supply Competition can be found in the Competition Guidance Notes (available at <https://www.gov.uk/guidance/funding-for-low-carbon-industry> or by emailing [industry.innovation@beis.gov.uk](mailto:industry.innovation@beis.gov.uk)).

This Competition is being delivered using the Small Business Research Initiative (SBRI) approach as a pre-commercial procurement and the competition will have two phases. This application form is **for Phase 2 Demonstration Project**. Applications for Phase 1 of the competition are now closed. Phase 1 has been supporting feasibility studies into the development of specific Hydrogen supply solutions or associated technologies. A detailed development plan for each solution describing the key development steps to commercialisation, including the key barriers and risks. This should include a detailed focus on the component(s) to be piloted in Phase 2. Each step will be costed.

**Phase 2 Demonstration Projects** may be funded up to a total of £7.5m per project, drawing from a fund of £15m set aside for this Phase. This phase will result in the implementation and demonstration of a hydrogen supply solution. It will consider applications to pilot key components or further develop the design of the new hydrogen supply solutions. A pilot demonstration is not limited to a physical demonstration and may only be for part(s) of the process. This could include detailed process modelling or engineering design.

The Phase 2 demonstration projects will be selected based on the information presented in this Application Form. No completely new applicants will be able to enter the Competition at Phase 2, although some variation in project partners may be permitted with agreement from BEIS. Only the lead applicant will be permitted to make a change to the project partners however, proper justification for the change must be provided and any material changes explained. All applications to Phase 2 will be assessed based on their responses to this application form. Any feasibility reports completed by the applicants will not form part of the assessment.

**Application Process:**

BEIS will expect an application from each of the Phase 1 projects unless notified by email to **industry.innovation@beis.gov.uk** that they will not be applying to Phase 2.

* **Questions about the Competition:** If you still have questions after reading the guidance notes, please submit any queries regarding the competition process to [industry.innovation@beis.gov.uk](mailto:industry.innovation@beis.gov.uk). All questions should be submitted by the 8th September 2019. Questions submitted after this date may not be answered. We will provide online replies to all those who have registered an interest (<https://www.gov.uk/guidance/funding-for-low-carbon-industry>, and on Contracts Finder <https://www.contractsfinder.service.gov.uk/Search>) to any questions which arise before 8th September 2019 and which, in our judgement, are of material significance. All bidders should take these replies into consideration when preparing their own bids and we will evaluate bids on the assumption that they have done so.
* **Submission of Proposal:** The full proposal for the Competition must be submitted by the deadline:
  + **Phase 2** **proposal submission deadline** is 2.00pm (BST) 23rd September 2019.
  + **File format and size:** Completed Phase 2 application forms, the completed finance templates and any supporting information should be submitted electronically. The completed finance form should be submitted as a spreadsheet (.xls) file, the completed application form should be submitted in pdf format.
  + The applicant should limit their response to each question to the page limit indicated in each question. The BEIS assessors will only assess the information contained within those limits. Appendices can be used to reference supporting information and the assessor may choose to read them to further understand details and assumptions.
  + The proposal documents must be emailed to [industry.innovation@beis.gov.uk](mailto:industry.innovation@beis.gov.uk) with ‘Phase 2 – Hydrogen Supply Competition (name of lead applicant)’ in the subject line.
  + The maximum size email you can send is 10MB. If your application is larger than 10MB, please break the submission down into smaller sizes and ensure the subject line of each additional email takes the following format ‘Phase 2 – Hydrogen Supply Competition (name of lead applicant) – email x of y’.
* **Submission Content:** Each Phase 2 proposal must include the following documents:
  + Completed application form, including signed declarations
  + Completed pricing schedule/finance form (this is a separate spreadsheet that can be downloaded from <https://www.gov.uk/guidance/funding-for-low-carbon-industry> or requested from [industry.innovation@beis.gov.uk](mailto:industry.innovation@beis.gov.uk))
  + Completed high-level project Gantt chart or project plan for the Phase 2 Demonstration Project.
  + A letter of support from the operator of the site where the demonstration will be carried out.
  + Optional: additional letters of support or other supporting information should also be submitted **where they add substantive information** to the proposal. The completed application form should include a list of any supporting documents and a statement against each of the nature and significance of each.

You should endeavour to answer all questions on the application in full. Incomplete applications and any containing incorrect information will very likely be rejected. BEIS may, at its discretion, request clarification before making a final decision.

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

* **Submission Costs:** You will not be entitled to claim from the Department any costs or expenses that you may incur in preparing your bid, whether your proposal is successful or not.
* **Consortium Bids:** Bids from consortia are welcome. **Only one submission should be submitted for each separate project bid** but all consortium partners are required to indicate their agreement with the proposal set out in this application form by signing a Potential Supplier Declaration form, which is provided in the ITT.

If a consortium is not proposing to form a separate corporate entity, the project partners will need to complete a Consortium Agreement. If a Consortium Agreement exists for phase 1, confirmation is required that it also covers phase 2, or a revised Consortium Agreement will be required. Funding will not be provided by BEIS until a signed consortium agreement has been finalised between all its members. Please note that BEIS reserves the right to require a successful consortium to form a single legal entity in accordance with Regulation 28 of the Public Contracts Regulations 2006.

BEIS recognises that arrangements in relation to consortia and sub-contractors may (within limits) be subject to future change. Bidders should therefore respond in the light of the arrangements as currently envisaged and are reminded that any future proposed changes in relation to consortia and sub-contractors must be submitted in writing to BEIS for approval.

* **Multiple Bids:** Applicants may put in multiple bids or be part of multiple consortia, for unique projects delivering different hydrogen supply solutions. BEIS reserves the right to assess the capability of the team to deliver multiple projects and whether the different projects are unique at the eligibility stage.
* **Tender Validity**: Phase 2 proposals shall be valid for a minimum of 60 calendar days from the submission deadline (23rd September 2019).

## **Contact and Bidder Details and Proposal Summary**

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| Summary Information | | |
| Name of Bidder  (This should be the lead organisation/co-ordinator for the proposed project. Please note that this will be the organisation with whom BEIS contracts for Phase 2 of this Competition[[1]](#footnote-2).) |  | |
| Project Title |  | |
| Phase 1 Lot Number |  | |
| Estimated Start Date |  | |
| Phase 2 Project Duration | 0 mths | |
| Total proposal price for Phase 2 Demonstration Project | £ 0.00 | |
| Estimated costs for Phase 2 Demonstration Project | £ 0.00 | |
| Is this a collaborative application? | Click to enter | Please provide contact and business details for all the project partners in Annex 1. |

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| Bidder Contact Details | | | | | | | | | | | | | | | | | | | | | | |
| Title | | Choose title | | | | | | | Name |  | | | | | | | | | | | | |
| Position | | |  | | | | | | | | | | | | | | | | | | | |
| Email | | |  | | | | | | | | | | | | | | | | | | | |
| Telephone | | |  | | | | | | | | | | Mobile | | |  | | | | | | |
| Organisation name | | | | |  | | | | | | | | | | | | | | | | | |
| Address | | | | |  | | | | | | | | | | | | | | | | | |
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| Town/City | | | | |  | | | | | | | | | | | | | | | | | |
| Postcode | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Type | | | | | Choose type | | | | | | | | | | | | | | | | | |
| If type of business is ‘other’, please describe here: | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Details | | | | | | | | | | | | | | | | | | | | | | |
| Number of employees (including directors) | | | | | | | | | | | | | | | 0 | | | | | | | |
| Business Registration Number | | | | | | | | | | | | | | |  | | | | | | | |
| Turnover (in most recent annual accounts) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| Business maturity | | | | | | | | | | | | | | | Choose maturity | | | | | | | |
| Does the business have a parent company? | | | | | | | | | | | | | | | Choose an item | | | | | | | |
| How is the business currently funded? (Choose all that apply) | | | | | | | | | | | | | | | | | | | | | | |
|  | No Funding | | |  | | Founders (including bank loans) | | | | |  | | | Friends and Family | | | |  | | Public Sector Grants\* | | |
|  | Angel Investment | | | | |  | | Venture Capital | | | |  | | Private Equity | | |  | | Stock Market Floatation | | | | |
| **Other public sector funding:** With respect to this project or the technology it is based on, please list briefly any public sector support you are receiving or have received in the past 10 years, or which is currently being sought (please add further details in a separate annex if necessary). | | | | | | |  | | | | | | | | | | | | | | | | |

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| Parent Company Details (if applicable) | | | |
| Organisation name |  | | |
| Address |  | | |
|  |  | | |
|  |  | | |
|  |  | | |
| County |  | | |
| Postcode |  | | |
| Turnover (in most recent annual accounts) | £ 0.00 | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | £ 0.00 | as at | enter date |
| Company maturity | Choose an item. | | |

## **Public Description of the Project**

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| The public description of the project should be a brief non-confidential description of the project that BEIS may use in online or printed publications. Please describe the project objectives and key deliverables and the expected project benefits)  (maximum 250 words) |
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## **Eligibility Criteria**

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| This section seeks information to address the Competition Eligibility Criteria: all projects will be assessed against these eligibility criteria before progressing to evaluation against the Assessment Criteria. Please see section 4 of the Competition Guidance Notes for further information. |

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| **1. Innovation and technology readiness** | |
| Please describe the final expected technology readiness level of the proposed Hydrogen Supply solution when your proposed Phase 2 project is completed. Please describe the expected technology status as well as providing a numerical TRL grading (see Annex 1 in the Guidance Notes for further information on technology readiness levels). |  |
| Please describe the current technology readiness level of the system or of its main components or sub-systems. |  |

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| **2. Technology scope** | |
| To the best of your knowledge:  a) is this Hydrogen Supply solution or approach already commercially deployed in the UK or elsewhere? b) have you secured contracts for future commercial deployment of this Hydrogen Supply?  If the answer is yes to any of these options, please provide further details. |  |
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| **3. Project activity** | |
| Please outline briefly the activities expected to be completed for the proposed Phase 2 Demonstration Pilot. | Choose an item. |

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| **4. Project status** | |
| Please describe any work which has been carried out on the proposed project already, excluding the Phase 1 feasibility (BEIS is unable to fund retrospective work on projects). |  |

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| 5. Additionality | |
| What is the added value of public funding for this project and what would be the outcome if no public sector funding was provided (for example, in terms of the extent or speed of innovation activity)?Explain why you can’t fund your demonstration pilot activity yourself? |  |

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| 6. Contract size | |
| Total proposal price for Phase 2 Demonstration Pilot (in £) |  |

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| 7. Eligible costs | |
| Please confirm that the proposed costs for the Phase 2 Demonstration Pilot are eligible – as defined in Annex 3 of the Phase 2 Competition Guidance Notes. |  |

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| **8. Project location** | |
| Please describe the location or locations where the proposed project will be carried out. If more than one location, please provide an estimate of the total project costs to be delivered at each location. |  |

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| **9. Project end-date** | |
| Please state the completion date for the Phase 2 Demonstration Pilot – including completion of all reporting requirements. |  |

## **Assessment Criteria**

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| This section seeks information to address the Competition Assessment Criteria: these criteria will be used to rank projects during the assessment process. Please see section 7 of the Competition Guidance Notes for further information. |

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| **1. Innovative, Hydrogen Supply approach (5% weighting)** |
| This criterion will be used to assess the novel approach to Hydrogen Supply in the proposed demonstration project. Applicants to Phase 2 should have already determined in outline, via earlier feasibility work, that their Hydrogen supply solution is technically feasible and meets, or has the potential to meet, the relevant industrial regulatory requirements, including health and safety and air quality.  In their responses under this criterion, applicants are expected to justify that their project is sufficiently proven in terms of technical and regulatory feasibility to warrant moving on to the proposed demonstration pilot stage. In making these justifications, applicants should reference the outputs of their earlier feasibility work, identify where further development is needed to confirm feasibility and explain how the demonstration pilot will be designed and executed to provide these confirmations.  Highest marks will be awarded to the innovative bulk low carbon hydrogen supply solution that best describe the work you carried out in the feasibility study informed your design and the benefits of the innovative solution over similar state of the art solutions. The TRL level of the proposed hydrogen solution will be accounted for when assessing the quality of information provided. The applicant should:   * With reference to Technology Readiness Levels (TRLs), clearly describe how and why the demonstration pilot will accelerate the development of bulk low carbon hydrogen. * Provide the latest evidenced justification for the technical and regulatory feasibility of the proposed demonstration pilot. This should reference earlier feasibility work, including engineering designs, engineering calculations and the outputs of other feasibility research and recapitulate the innovative nature of the solution. * For Lot 1, applicants are required to compare with the agreed counterfactual as defined in Annex 2. * Note that no applications were received for Lot 3 in Phase 1 of the competition. * For Lot 2 and 4, applicants are required to compare against the state of the art. Where the system is deemed to be a first of a kind, applicants are required to define the closest comparable system and compare against the state of the art to demonstrate the technical benefits of the proposed system. * Clearly set out where there is remaining uncertainty about technical and regulatory feasibility and explain how your demonstration pilot will address these uncertainties. |
| 1a. Please give a detailed description of the Hydrogen supply demonstration you are proposing to undertake. Put into context by explaining the activities that you have undertaken leading up to this application. Describe the engineering design for your demonstration and explain how the outputs of the feasibility work you have carried out to date have informed your engineering design.  ***Please limit your response to 4 pages*** |
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| 1b. Please explain all innovative approaches to be used in the proposed solution. Compare the proposed solution to any similar state of the art solutions by explaining the main differences between the solution and the state of the art and the benefits that the solution presents over the state of the art.  ***Please limit your response to 2 pages*** |
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| **2. Performance and cost reduction of the hydrogen supply solution (20% weighting)** |
| This criterion will be used to assess the performance, cost and scalability of the hydrogen supply solution in supplying one or more the gas grid, heating, industry, power and transport.  Applicants are expected present these in light of their current knowledge gained from the development work they have undertaken to date, indicate where there is remaining uncertainty about the solution’s performance and explain how the demonstration pilot will be designed and executed to remove or lessen these uncertainties.  Highest marks will be awarded to applications that are able to demonstrate the superior performance of their solution which must be supported by robust, evidence based analyses of the performance of their solution, drawing upon the results of their recent feasibility work and referencing the engineering calculations in the feasibility study or research papers. The applicant’s improvement to the certainty of the cost basis achieved during the feasibility study will also be assessed.  Highest marks will also be given to the hydrogen supply solutions that will provide the greatest throughput flexibility to supplying bulk low carbon hydrogen for the widest range of end users including the gas grid, heating, industry, power and transport. If the hydrogen supply solution can operate at a variable throughput, details of the impact on the efficiency of the process should be presented.  For the different Lots:   * Lot 1: For this Lot, all the parameters in the counterfactual are applicable. The carbon capture rates should be discussed (the higher the better but needs to take account of impacts on cost) * Lot 2: For this Lot, the Hydrogen product and System parameters in the counterfactual are applicable. The wider system benefit costs should be considered in sufficient detail; * Lot 3: Not applicable, as no applications were received for phase 1 of the competition. * Lot 4: For this Lot, the System parameters in the counterfactual are applicable. The impact of the proposed solutions on the purity of hydrogen, scale of storage possible should be considered in sufficient detail; * All Lots: With reference to the engineering design and feasibility study results, reconfirm or revise the likely lifetime costs of the Hydrogen Supply solution compared with the applicable counterfactual parameters including round-trip efficiency. If these have changed significantly, explain why this is so. * All Lots: With reference to the feasibility study results, explanation of where there is uncertainty regarding lifetime costs of the solution and description of what the uncertainty is and demonstrate plans for removing these uncertainties via the demonstration phase.   Strong responses under this criterion should complement and support responses given under Criterion 3 Development Plan, Criterion 5 Project Delivery. |
| **2a. Performance of the proposed solution *(10%)*** | |
| Please provide a detailed explanation of the performance of the proposed hydrogen supply solution and compare it to the current state of the art solution and the applicable counterfactual parameters, define the assumptions made and the basis for those assumptions (depending on the level of development of the solution we would expect a higher degree of confidence with higher TRL projects). Describe any impact operating the hydrogen supply solution will have on lifetime costs and performance. Outline which end user (the gas grid, heating, industry, power and transport) the hydrogen supply solution will supply and why this solution can supply those users. Lifetime costs should be inclusive of CAPEX and OPEX for the main plant equipment.  Applications should:   * Provide details of the performance and flexibility of the proposed solution at the demonstration site and when rolled-out across multiple, suitable sites in future. * Explain how the demonstrator/FEED will be used after this Phase 2 project has been completed, or indicate the decommissioning strategy. * Provide evidence of how and why this solution will better supply the end user (gas grid, heating, industry, power and transport) compared to the current state of the art and applicable counterfactual parameters. * Provide an explanation of what has been learned from the feasibility study about the technical barriers to deployment and description of the plan during the demonstration stage to overcome/scope-out/understand these barriers better. * Provide an overview of the performance validation that was conducted during the feasibility study phase and how this compares with what was claimed. Applicants should detail the approach of the performance validation process that will be followed during the demonstration phase and how this will differ from the feasibility study.   Referencing evidence from the feasibility study, provide an explanation of why it is believed that the hydrogen supply solution will be acceptable to the market in terms of ease of installation and reliability.  ***Please limit your response to 4 pages*** |
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| **2b. Lifetime costs of the proposed solution *(10%)*** | |
| With reference to your recent feasibility work and demonstration engineering design, provide a detailed updated analysis of the likely lifetime costs of your solutionproviding the assumptions used based on the feasibility study results. If these have changed significantly, please provide a detailed explanation of why this is so.Describe how the feasibility study and demonstration phase will firm up these costs. Include in this analysis the capture rates for Lot 1, the system benefit costs for Lot 2 and the impact on the purity of hydrogen and round-trip efficiency for Lot 4. How do these compare against your previous estimates and state of the art? Highlight the main uncertainties associated with these latest cost estimates and explain how the design and execution of your demonstration pilot will address these uncertainties. Costs should be inclusive of CAPEX and OPEX for main plant equipment.  Applicants should note the following:   * Lots 1 and 2, to aid easier comparison of the applications, should be costed at an average annual throughput equal to or greater than the counterfactual (SMR+CCS) and carbon emitted per unit of hydrogen produced (in kg CO2/kNm3). * Lot 4 should quote the scale of operation and the cost effectiveness against current state of the art solutions, and roundtrip efficiency. * The applicable technical parameters should match those stated in the counterfactual including the relevant pressures, purities and flow rates. These boundary conditions should be used to develop costs of a counterfactual. If a different set of boundary conditions is more representative for your hydrogen supply technology, this can also be included, in addition, to help support your application. * Compare and justify all costs and cost reduction of the proposed system to the current state-of-the-art hydrogen supply solution or closest comparable existing solution. * To calculate (and enable us to compare) lifetime costs, bidders should use BEIS’s estimates for cost of carbon, electricity and natural gas prices in 2035 (assume these costs and prices do not change). These are provided in in Annex 2. If a different cost assumption basis is more representative for your hydrogen supply technology, this can also be included, in addition, to help support your application. * All units of measurement provided for the analysis should match those stated in the counterfactual.   ***Please limit your response to 4 pages*** |
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| **3. Development Plan  (20% weighting)** |
| This criterion will be used to assess the plans for the further development, commercialisation, exploitation post project and how this lines up with net-zero.  This criterion will be assessed by examining the quality of the applicant’s development plan and how they line up with HMG’s legal target to achieve net-zero by 2050. The development plan should comprehensively appraise the outstanding technical challenges of the solution and its commercial benefits and risks relative to the applicable counterfactual parameters. From this appraisal the applicant should present a specific plan for addressing the challenges and exploiting the benefits associated with their solution, such that the development plan moves the solution towards commercialisation. An appraisal should also be made to address the market potential/replicability of the solution across the UK, the potential carbon savings, and explain how the solution can help with achieving net-zero.  To obtain the highest marks, the development plan should set out the approach to specifically address the remaining technical and commercial challenges and leverage the benefits of the solution, the rationality of achieving stretching capacity targets. Integral to this plan, applicants should present realistic timescales and costs associated with their development plan.  As the competition is 100% publicly funded, a key outcome of the demonstration pilot is the dissemination of arising knowledge and capacity building within the market. Therefore, this criterion assess the quality of the project team’s dissemination plan and commitment to share , with the relevant community of industrial stakeholders, private sector funders the knowledge and experience gained from the pilot demonstration and earlier feasibility studies.  Applicants must be able to demonstrate a strong development plan and commitment to knowledge dissemination and knowledge sharing by presenting a credible plan which:   * Identifies the relevant stakeholders, including plant manufacturers and suppliers, plant end users, the trade bodies representing these players and academia, as necessary. * Lists appropriate mechanisms for interacting with these stakeholders. * Explains the type of knowledge sharing and capacity building activities that will be pursued. * Presents a timetable for these activities. |
| **3a. Short term development plan *(5%)*** | |
| 3a Please provide a summary of your short-term development plan that comprehensively appraise the outstanding technical challenges of the solution and its commercial benefits and risks relative to the applicable counterfactual parameters. In your response, please cover the following:   * Based on the feasibility study results, present the plan for further development, commercialisation and exploitation of the hydrogen supply solution. What are now the main technical and commercial challenges and risks to getting the solution to market? * A summary of the business plan must be presented that highlights the route to market and estimated time to secure market share.   *Please limit your response to 2 pages* |
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| **3b. Long term development plan *(10%)*** | |
| Please provide a summary of your longer term development plan that highlights the route to market and estimated time to secure market share including highlighting the key challenges to achieving commercialisation at scale (assuming there is a demand for bulk low carbon hydrogen), timescales, build rate, and estimated development costs. In your response, please cover the following:   * Discuss the timescales and development costs and any potential supply chain constraints to produce a stretching target capacity for the hydrogen supply solution. BEIS estimates a stretching target of[[2]](#footnote-3)   + around 10TWh/y hydrogen by 2035 (Lot 1);   + around 10TWh/y hydrogen by 2040 (Lot 2);   + and a volume of stored hydrogen stored of around 2.5 TWh by 2035 (Lot 4).   This should include potential cost savings through learning by doing and a rational scaling up the hydrogen solution. With reference to the response against Criteria 5 (Delivery Plan) how will these be mitigated?   * Route to market and market potential of the proposed solution discussing the alternatives and the competitive advantage highlighting future innovations and learning rates and how your hydrogen supply solution could reduce the costs of achieving net-zero. * Explain how your demonstration will accelerate the development of bulk low carbon hydrogen.   *Please limit your response to 4 pages* |
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| **3c. Knowledge dissemination strategy *(5%)*** | |
| Please explain your current plans for taking the knowledge and experiences arising from the demonstration pilot and ensuring that these are effectively communicated and shared within the relevant industrial community.  *Please limit your response to 2 pages* | |

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| **4. Project financing**  (25% weighting)  You must also complete a separate Finance Form (spreadsheet) and submit it with your completed Application Form. | | |
| This criterion will be used to assess:   * Whether the Phase 2 demonstration pilot costs against which you seek funding represent a fair market value and checked that all the costs are eligible * Whether the Phase 2 demonstration costs you set out are comprehensive, appropriate and sufficient to deliver the programme of work set out under Criterion 5, Project Delivery. * The extent to which public funding will make a material difference to the actuality and the pace of moving the solution towards commercialisation. * That the financing of your project is appropriate for the balance of risks and benefits seen by your consortium and those seen by HM Government.   Under this criterion, the applicant is specifically asked to explain the additionality that public funding of their pilot demonstration brings. This means clearly explaining and justifying the material difference that public funding will make towards the actuality and the pace of moving the solution towards commercialisation.  In recognition of the fact that the risks of the project development are shared with HM Government, but the applicant stands to gain all of the benefits accruing after completion of the project, the applicant is asked to explain where costs savings, from the point of view of HM Government, will be provided compared to the case where the project would be carried out under an exclusive development contract.  Highest marks will be awarded to applicants who, via their responses under this criterion, demonstrate the following:   * That all costs needed to execute the programme of work set out under Criterion 5, Project delivery have been identified * That all costs are justified, eligible, fair market value and sufficiently disaggregated to judge that this is the case * Specifically, in the case of staff costs, that different grades of staff are assigned to tasks in a way that is appropriate for and proportionate to the complexity of the task. All overheads must be justified with increasing detail as the overheads increase and the applicant must state the proportion of overheads in terms of overall project cost. BEIS will not normally pay overheads over 50%, any overheads above this amount need to be fully justified. * That the project finances are appropriate for the balance of risks and benefits seen by the project consortium and those seen by HM Government. | | |
| **4a Project costs *(10%)*** | | |
| Please fill in the separate Project Finance Form, propose a payment schedule (please add as an annex), and complete the project finance summary below: | | |
| Phase 2 demonstration pilot: total project cost (exc VAT) | £ 0.00 | |
| Phase 2 demonstration pilot: Total funding claimed (exc VAT) | £ 0.00 | |
| Phase 2 Project team contribution - cash | £ | |
| Phase 2 Project team contribution – in kind | £ | |
| **4b Value for money to HM Government *(15%)*** | |

Describe why this proposal represents good value for money for HM Government. In your answer explain the following: (i) How the availability of public funding makes a material difference to the actuality and pace of moving your solution towards commercialisation, and (ii) Qualify and quantify the savings you are passing on to HM Government to reflect the asymmetric balance of risks and benefits accruing to the project consortium and HM Government.

***Please limit your response to 3 pages***

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| **5. Project delivery (30%)** |
| This criterion will be used to assess the expected effectiveness and efficiency of delivery of the demonstration pilot. It will do this by taking into consideration the quality of the project plan put forward, the project team’s capability and capacity to deliver the project plan within the indicated time and the quality and realism of the risk assessment and mitigation plan offered. This will be assessed against a range of factors, including:   * The capacity, experience and capability of the project team * Evidence that the project team will be structured and governed in a way that is appropriate for the demonstration project and equal to the challenges * The completeness and quality of the proposed project delivery plan for demonstration project * The appropriateness and realism of the project milestones and deliverables * The project’s access to the necessary skills and facilities * The quality of risk assessment and contingency planning, including consideration of health and safety and other regulatory requirements.   Highest marks will be awarded to applicants who:   * Clearly state the aim of the demonstration trials proposed by, for example, stating what levels of performance constitute a successful trial. * Provide a detailed project plan focused on achieving the project aim * Provide a team organogram * Identify the skills and competencies necessary for each Task * Map personnel to these skills and competencies * Identify the key project risks and present mitigation strategies for these. (In the interests of thoroughness, we encourage you to think about risks and structure your risk assessment according to whether the risks are, or relate to: technical, legislative/regulatory, environmental, policy, economic, commercial, financial or project management.) * Confirm the location of the site where the demonstration will be carried out * Provide written commitment from site in question that the resources needed (space, personnel and time) are available * Demonstrate the strong commitment of all participating organisations * Explain in detail the nature of the demonstration trials (modelling runs) that must be completed, including, for example, number of run variables to be explored with justification * Provide a schedule of the demonstration (modelling) runs and explain why these can be accommodated within the site’s normal activities. |
| **5a Delivery plan *(15%)*** |
| (i)For the **Phase 2 Demonstration pilot**, please provide complete Table 5a. Setting out the key work packages. In support of this, please also provide a separate **high-level Gantt chart** **or outline project plan** listing the key tasks and timescales.  ***Please limit your response to 3 pages*** |
| (ii) For the **Phase 2 demonstration pilot**, please complete Table 5b below to describe the **project milestones** for your demonstration pilot and list out the associated **deliverables**.  ***Please limit your response to 3 pages*** |
| **5b Project team *(10%)*** |
| (i) For the **Phase 2 demonstration pilot**, please provide an organogram and outline below the **key roles for each partner** and the proposed **governance arrangements** between the partners to ensure effective project delivery.  ***Please limit your response to 4 pages*** |
|  |
| (ii) For the **Phase 2 demonstration pilot**, please list any **external parties** responsible for delivering goods or services worth more than 10% of the total project value and explain how you will ensure that these parts of the project do not give rise to delays in the delivery of the project.  ***Please limit your response to 1 page*** |
|  |
| (iii) **For the Phase 2 demonstration pilot**, please provide details below of the **relevant skills, qualifications and experience** of main project team members, including descriptions and evidence of previous relevant work carried out. Please include brief details of relevant previous projects, including the date, location, client and project size.  ***Please limit your response to 6 pages***  Brief CVs of lead individuals within the project team should be provided in an Annex to this Application (CVs should be no longer than 2 pages each). |
|  |
| **5c. Risk assessment *(5%)*** |
| (i) Please complete 5c below to outline the **key project risks and risk mitigation** techniques for the **Phase 2 demonstration pilot**.  ***Please limit your response to 3 pages*** |

**Table 5a – Project Work Packages – Phase 2 Demonstration Pilot**

|  |  |  |  |
| --- | --- | --- | --- |
| **Work package number** | **Work package name** | **Project partner lead for work package** | **Brief description of work package, including key tasks** |
| **WP1** |  |  |  |
| **WP2** |  |  |  |
| **WP3** |  |  |  |
| *Please add further rows as necessary for each work package* | | | |

**Table 5b – Project Milestones – Phase 2 Demonstration Pilot**

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestone number** | **Milestone name** | **Project partner lead for milestone delivery** | **Brief description of milestone** |
| **M1** |  |  |  |
| **M2** |  |  |  |
| **M3** |  |  |  |
| *Please add further rows as necessary for each milestone* | | | |

|  |  |  |
| --- | --- | --- |
| **Milestone number** | **Description of deliverables** | |
| **M1** |  | |
| **M2** |  | |
| **M3** |  | |
| *Please add further rows as necessary for each milestone* | |

**Table 5c – Risks and Risk Management – Phase 2 Demonstration Pilot**

*(Bidders can provide their own Risk Table as a separate Annex if preferred)*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Risk Type** (i.e. is it in nature: technical, legislative/regulatory, environmental, policy, economic, commercial, financial or project management) | **Risk Description**  (Describe the risk) | **Cause of Risk** (Describe the conditions under which the risk arises) | **Risk Owner** (who has the power to manage the risk and therefore takes responsibility for it) | **Probability (1-5)** | **Impact (1-5)** | **Overall risk rating:** (Probability x Impact) | **Mitigation Action** (Describe what can be done to reduce the probability or severity of the risk) | **Revised Probability (1-5)** | **Revised Impact (1-5)** | **Revised Overall risk rating:** (Probability x Impact) |
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| Further Information:  Please provide any further key information in additional annexes, or alternatively provide as attachments to the email submission. All additional information should be appropriately referenced within the application form text so that assessors can readily refer to it. If information is not appropriately referenced it will not be considered during the assessment process. |
|  |

# Annex 1: Partner Information (for Collaboration Projects only)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Contact Details – Partner 1 | | | | | | | | | | | | | | | | | | | | | | |
| Title | | Choose title | | | | | | | Name |  | | | | | | | | | | | | |
| Position | | |  | | | | | | | | | | | | | | | | | | | |
| Email | | |  | | | | | | | | | | | | | | | | | | | |
| Telephone | | |  | | | | | | | | | | Mobile | | |  | | | | | | |
| Organisation name | | | | |  | | | | | | | | | | | | | | | | | |
| Address | | | | |  | | | | | | | | | | | | | | | | | |
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| Town/City | | | | |  | | | | | | | | | | | | | | | | | |
| Postcode | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Type | | | | | Choose type | | | | | | | | | | | | | | | | | |
| If type of business is ‘other’, please describe here: | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Details – Partner 1 | | | | | | | | | | | | | | | | | | | | | | |
| Number of employees (including directors) | | | | | | | | | | | | | | | 0 | | | | | | | |
| Business Registration Number | | | | | | | | | | | | | | |  | | | | | | | |
| Turnover (in most recent annual accounts) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| Business maturity | | | | | | | | | | | | | | | Choose maturity | | | | | | | |
| Does the business have a parent company? | | | | | | | | | | | | | | | Choose an item | | | | | | | |
| How is the business currently funded? (Choose all that apply) | | | | | | | | | | | | | | | | | | | | | | |
|  | No Funding | | |  | | Founders (including bank loans) | | | | |  | | | Friends and Family | | | |  | | Public Sector Grants\* | | |
|  | Angel Investment | | | | |  | | Venture Capital | | | |  | | Private Equity | | |  | | Stock Market Floatation | | | | |
| \*With respect to this project or the technology it is based on, please list any public sector support received in past 10 years, or currently being sought (please add further details in a separate annex if necessary) | | | | | | |  | | | | | | | | | | | | | | | | |

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| Parent Company Details (if applicable) | | | |
| Organisation name |  | | |
| Address |  | | |
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|  |  | | |
|  |  | | |
| County |  | | |
| Postcode |  | | |
| Turnover (in most recent annual accounts) | £ 0.00 | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | £ 0.00 | as at | enter date |
| Company maturity | Choose an item. | | |

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| Contact Details – Partner 2 | | | | | | | | | | | | | | | | | | | | | | |
| Title | | Choose title | | | | | | | Name |  | | | | | | | | | | | | |
| Position | | |  | | | | | | | | | | | | | | | | | | | |
| Email | | |  | | | | | | | | | | | | | | | | | | | |
| Telephone | | |  | | | | | | | | | | Mobile | | |  | | | | | | |
| Organisation name | | | | |  | | | | | | | | | | | | | | | | | |
| Address | | | | |  | | | | | | | | | | | | | | | | | |
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| Town/City | | | | |  | | | | | | | | | | | | | | | | | |
| Postcode | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Type | | | | | Choose type | | | | | | | | | | | | | | | | | |
| If type of business is ‘other’, please describe here: | | | | |  | | | | | | | | | | | | | | | | | |
| Organisation Details – Partner 2 | | | | | | | | | | | | | | | | | | | | | | |
| Number of employees (including directors) | | | | | | | | | | | | | | | 0 | | | | | | | |
| Business Registration Number | | | | | | | | | | | | | | |  | | | | | | | |
| Turnover (in most recent annual accounts) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | | | | | | | | | | | | | | | £ 0.00 | | | | | | as at | enter date |
| Business maturity | | | | | | | | | | | | | | | Choose maturity | | | | | | | |
| Does the business have a parent company? | | | | | | | | | | | | | | | Choose an item | | | | | | | |
| How is the business currently funded? (Choose all that apply) | | | | | | | | | | | | | | | | | | | | | | |
|  | No Funding | | |  | | Founders (including bank loans) | | | | |  | | | Friends and Family | | | |  | | Public Sector Grants\* | | |
|  | Angel Investment | | | | |  | | Venture Capital | | | |  | | Private Equity | | |  | | Stock Market Floatation | | | | |
| \*With respect to this project or the technology it is based on, please list any public sector support received in past 10 years, or currently being sought (please add further details in a separate annex if necessary) | | | | | | |  | | | | | | | | | | | | | | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Company Details (if applicable) | | | |
| Organisation name |  | | |
| Address |  | | |
|  |  | | |
|  |  | | |
|  |  | | |
| County |  | | |
| Postcode |  | | |
| Turnover (in most recent annual accounts) | £ 0.00 | as at | enter date |
| **Balance Sheet Total** (total assets net of depreciation) | £ 0.00 | as at | enter date |
| Company maturity | Choose an item. | | |

|  |
| --- |
| Additional Partners:  *If required, please add further tables for Contact, Organisation Details and (if relevant) Parent Company Details for any additional partners.* |
|  |

# Annex 2: Boundary Conditions for Counterfactual and Assumptions

The table below provides the boundary conditions for your counterfactual, please use when completing question 2b. If a different (justifiable) set of boundary conditions is more representative for your hydrogen supply technology, this can also be included, in addition, to help support your application.

|  |  |  |
| --- | --- | --- |
|  | Units | Natural Gas SMR with CCS |
| Hydrogen Product Parameters | | |
| Product Flow Rate | MWth | 300 |
| Hydrogen Purity | % | 99.9 |
| Hydrogen Output Pressure | bar | 30 |
| Net Efficiency (LHV) | % | 67.2 |
|  |  |  |
| CCS Parameters | | |
| CO2 Capture Rate | % | 90.1 |
| CO2 Output Stream Purity | % | 96 |
| CO2 Output Stream Pressure | bar | 30 |
| CO2 Output Stream Temperature | °C | 50 |
| CO2 Output Stream Maximum Water Concentration | PPM | 250 |
|  |  |  |
| System Parameters | | |
| Operating Lifetime | Years | 20 |
| IRR | % | 10 |

Note: CO2 output stream is assumed to be dry and ready for transport.

Carbon Price (based on BEIS estimate for 2035): £113/tonne(CO2e)

Natural Gas Industrial Retail Price (based on BEIS central estimate for 2035): 2.98p/kWh

Electricity Industrial Retail Price (based on BEIS central estimate for 2035): 12.6p/kWh

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

1 Victoria Street, London SW1H 0ET

1. BEIS recognises that arrangements in relation to consortia and sub-contractors may (within limits) be subject to future change. Bidders should therefore highlight where there is a change to consortia from the team delivering the feasibility study along with the reasoning for the change. [↑](#footnote-ref-2)
2. This is not a BEIS policy objective and is being used for illustrative purposes as a stretching target. [↑](#footnote-ref-3)