Department for
Business, Energy
& Industrial Strategy

Net Zero Innovation Portfolio

Industrial Hydrogen Accelerator

Stream 2B Competition Guidance Notes

Demonstrating the production and use of hydrogen in industrial applications

GRANT COMPETITION - PRJ_387

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Contents

Glossary of terms and definitions

BEIS	Department for Business Energy and Industrial Strategy
Capex	Capital Expenditure
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
DNO	Distribution Network Operator
EIR	Environmental Information Regulations (2004)
FAQs	Frequently Asked Questions
FEED	Front-End Engineering Design
FID	Final Investment Decision
GDPR	General Data Protection Regulation
GHG	Greenhouse Gas
HBM	Hydrogen Business Model
HHV	Higher heating value
IETF	Industrial Energy Transformation Fund
IFS	Industrial Fuel Switching
IHA	Industrial Hydrogen Accelerator
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
kt	Kilo-tonnes
LCHS	Low Carbon Hydrogen Standard
LHV	Lower Heating Value
M or m	Million
MW	Megawatts
MW_{H2}	MW of hydrogen
MWh	Megawatt-hours
NZHF	Net Zero Hydrogen Fund
NZIP	Net Zero Innovation Portfolio
Opex	Operating Expenditure
RD&D	Research, Development and Demonstration
SBRI	Small Business Research Initiative
SME	Small and Medium Enterprise
TRL	Technology Readiness Level
TWh	Terawatt-hours
UK	United Kingdom
WTO	World Trade Organisation
VAT	Value-Added Tax
yr	Year

Supporting Documents

The following documents support this Competition Guidance and are available on the competition website.

- Annex 1A: Grant Funding Agreement
- Annex 2A: Declarations (Stream 2B)
    - Declaration 1: Statement of non-collusion
    - Declaration 2: Form of bid
    - Declaration 3: Conflict of Interest
    - Declaration 4: Code of Practice
    - Declaration 5: Modern Slavery Statement
    - Declaration 6: Standard Selection Questionnaire (SSQ) Parts 1, 2 & 3
    - Declaration 7: The UK General Data Protection Regulation Assurance Questionnaire for Contractors
- Annex 3A: IHA Project Cost Breakdown Form (Stream 2B)
- Annex 4A: IHA Stream 2B: Word Version Application Form (to view only, do not submit)
- Annex 5A: Partner Information Form (Stream 2B)
- Annex 6: IHA Technical Performance Excel (Stream 2B)

1. Programme Overview

The purpose of this Guidance is to give a comprehensive overview of the Industrial Hydrogen Accelerator (IHA) programme and Stream 2B competition (the competition) and associated procedures for participation. For further information, please also refer to the information and documents available on the web page here.

1.1. Programme Summary

The IHA is an innovation funding programme to support the demonstration of end-to-end industrial fuel switching to hydrogen, through funding provided by the Department for Business, Energy and Industrial Strategy (BEIS). The scope will include the full technology chain, from hydrogen generation and delivery infrastructure through to industrial end-use, including the integration of the components in a single project. The IHA will provide up to £26 million as part of BEIS' £1 billion Net Zero Innovation Portfolio, which aims to accelerate the commercialisation of innovative clean energy technologies and processes through the 2020s and 2030s. Switching industry to lower carbon fuels will be critical for meeting the UK's legally binding commitment to achieve net zero by 2050. This competition guidance document is for Stream 2B, with up to £20 million in grant funding available. Projects can apply for up to £7 million per demonstration project, or up to £3.5m per Front End Engineering Design (FEED) study.

1.2. Programme Structure

The Industrial Hydrogen Accelerator is a funding programme with up to £26 million for projects developing knowledge on the design and implementation of hydrogen systems for industry. The IHA will support projects in Stream 2B through providing funding for demonstration projects or FEED studies.

The programme is delivering through three funding streams.

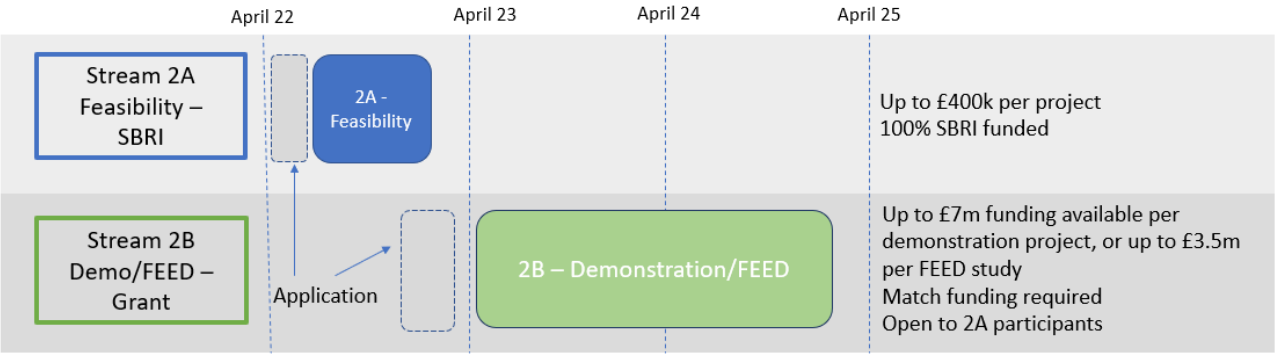
Stream 1: Demonstration – Grant (closed)
A grant funding competition for demonstration projects, with a maximum of £10 million in funding for each project; applicants needed to provide match funding. The demonstration projects will construct end-to-end industrial hydrogen systems, from hydrogen production to end-use, to prove their feasibility and provide further evidence on the real-world performance and costs.

Stream 2A: Feasibility – Small Business Research Initiative SBRI (closed)
A Small Business Research Initiative (SBRI) competition for feasibility studies, was available with a maximum of £400,000 in funding for each project. No match funding was required for this stream. The feasibility studies explore how systems could be designed and provide

information on the technical requirements and costs. Winners will be able to bid for a demonstration/FEED grant, see Stream 2B.

Stream 2B: Demonstration/FEED – Grant (this competition)
A grant funding competition for demonstration/FEED projects, with a maximum of £7 million funding for each demonstration project, or £3.5 million available for each FEED study. Applicants will need to provide match funding. Stream 2B is open only to projects who have completed feasibility studies in Stream 2A and submitted a draft feasibility report for Stream 2A prior to submission of Stream 2B application. Note that approval of Stream 2A final reports will be required before grant signature for Stream 2B.

Figure 1 Overview of competition streams 2A and 2B



The competition streams are delivered through two different funding mechanisms, grants and Small Business Research Initiative (SBRI). For more information about the Grant funding available through this competition, see **Section 4.**

This Competition Guidance refers to Stream 2B. Stream 2B follows on from Stream 2A and is only open to applicants who have successfully delivered projects within Stream 2A and submitted a draft report for Stream 2A.

1.3. Purpose

The aim of the IHA programme is to prove the feasibility and viability of hydrogen fuel switching in industrial applications, as well as reducing the cost and risks associated with industrial fuel switching, in order to develop confidence in hydrogen as a solution by 2025. The programme will seek to achieve this aim by providing projects with funding under the SBRI and through grants for innovation projects.

It is a requirement of receiving this funding that projects undertake dissemination activities to share the findings with stakeholders. For more information on the specific requirements, see the **Section 11** of this guidance.

1.4. Programme Objectives

The programme aims to identify, support and then develop credible integrated hydrogen production and fuel switching systems that can bring about a step change in understanding and the rate of future deployment to support the achievement of Net Zero by 2050. It will:

1. Prove the feasibility and provide evidence towards the cost effectiveness of hydrogen fuel switching through feasibility and FEED work.
2. Improve project stakeholder understanding of how to design, implement and deliver a hydrogen solution on a specific industrial site through demonstration projects.
3. Develop stakeholder knowledge, confidence, and awareness of hydrogen end-to-end system solutions in industry through dissemination activities and reports.
4. Facilitate the development of new commercial relationships and build market awareness of industry actors through networking and engagement events.

2. Competition Context and Scope

2.1. Context

UK industrial sectors combined produce 16% (72 Mt CO_2e) of UK emissions[1]. Around half of these emissions are concentrated in industrial clusters[2], with the remainder dispersed. Meeting the Net Zero target requires a near-complete decarbonisation of UK industry. The Committee on Climate Change (CCC) estimated that decarbonising industry will take c. £8 billion public and private investment a year[3].

The Industrial Hydrogen Accelerator programme forms part of the £1 billion Net Zero Innovation Portfolio (NZIP), announced in the Prime Minister's 10 Point Plan in Autumn 2020. The NZIP is outlined in the Energy White Paper: Powering our Net-Zero Future and it runs until March 2025, with the aim to accelerate the commercialisation of innovative clean energy technologies and processes through the 2020s and 2030s.

The Net Zero Strategy (2021) states that "Fuel switching to hydrogen is likely to be the least-cost option to decarbonise harder to electrify sites" and that we should explore opportunities for faster decarbonisation of dispersed industrial sites in the 2020s. Testing the feasibility of hydrogen in industrial settings is important because hydrogen and its derivatives can be stored more easily than electricity and could be a complement to renewables, enabling use of lower cost energy. In some cases, where very large electricity connections (or dedicated renewables) are not possible, hydrogen transportation via pipeline may also be more practical and economic. Hydrogen can be combusted in a similar way to natural gas, so is likely to integrate more easily into some existing industrial processes which use natural gas.

The IHA programme supports the Industrial Decarbonisation Strategy (March 2021), which identified that government investment is required to advance the development of low carbon technologies to address the barrier around uncertainties associated with novel technologies for the private sector. The modelling suggests that deep decarbonisation technologies (CCUS and fuel switching) will achieve 28-35 $MtCO_2$/yr abatement by 2050, of which 25-51% is through hydrogen fuel switching. IHA funding will support Action 6.1 of the Industrial Decarbonisation Strategy: to "Support innovation in fuel switching technologies, including low carbon electricity, hydrogen and biomass".

The UK Hydrogen Strategy (August 2021) stated that low carbon hydrogen has a critical role to play in our transition to net zero and set out the ambition to rapidly ramp up production and use of hydrogen over the coming decade. The British Energy Security Strategy (April 2022)

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[1] BEIS, Industrial Decarbonisation Strategy and Final UK greenhouse gas emissions from national statistics: 1990 to 2018: Supplementary tables, 2020
[2] BEIS, 2020 - BEIS analysis of the NZIP model, see Annex 4
[3] CCC Net Zero Technical Report, May 2019, p.105. Modelling compares a 'do nothing' scenario with a 'further ambition' scenario (cutting industry emissions to 10 MtCO2e by 2050).

doubled our ambition to up to 10 GW (~84 TWh/yr) of low carbon hydrogen production capacity by 2030, subject to affordability and value for money, with at least half of this coming from electrolytic hydrogen. A significant proportion of this hydrogen is expected to be used in industrial applications. The IHA aims to address current technical and commercial barriers and provide the proof of concept needed to underpin the use of hydrogen in industry this decade. The projects will showcase first-of-a-kind blueprints to enable accelerated industrial hydrogen deployment in the late 2020s and support the UK's 2030 10 GW hydrogen production ambition. The evidence generated by the IHA on the use of hydrogen by industrial users would also help inform strategic decisions in 2026 on the role of low carbon hydrogen as a replacement for natural gas in the gas grid, as outlined in the UK Hydrogen Strategy.

The Industrial Hydrogen Accelerator programme builds on the BEIS Energy Innovation Portfolio Industrial Fuel Switching and Low Carbon Hydrogen Supply innovation programmes, which ran from 2015 to 2022. The programmes supported feasibility studies and demonstration projects on low carbon industrial equipment and hydrogen generation technologies respectively. The findings from the projects can be found on the websites and may be useful to inform IHA projects. The IHA aims to bring together hydrogen generation and end-use technologies into a complete system.

2.2. Project Scope and Eligible Costs

The Industrial Hydrogen Accelerator programme is looking to fund innovation in end-to-end hydrogen fuel switching in industrial applications. The Stream 2B competition is looking to fund end-to-end industrial demonstrator/FEED projects which have already completed some scoping and feasibility work (including through Stream 2A).

Innovation: The end-to-end industrial hydrogen system will likely be made up of multiple component technologies (e.g. electrolyser/reformer, delivery pipework, furnace/burner), some of which may be more mature than others. Projects must be able to justify that the full solution/system and/or specific technologies within it are innovative and unproven prior to launch. There are no eligibility stipulations over the TRLs of the technologies; individual components are permitted to be mature/commercially available. However, applicants should bear in mind that projects where all component technologies are currently commercially available are unlikely to score highly unless there is significant innovation in the technology integration / system configuration. Conversely, projects where multiple component technologies in the system are low TRL may present a high risk to successful project completion. We welcome innovative solutions which use synergies between components of the system to improve energy or resource efficiency or reduce costs.

End-to-end: Projects must include hydrogen generation, hydrogen delivery infrastructure and industrial end-use in a robust chain as a single project (projects may include storage but are not required to do so). For the purposes of this competition, a robust chain means a full system configuration that could reasonably be used long term on a commercial basis; projects must justify this in their application. The hydrogen generation and end-use do **not** need to be co-

located on the same site, although a greater distance may lead to more complex arrangements.

Not all aspects of the end-to-end demonstrator must be funded through the IHA, but any other public funding to be used for any aspects of the project not funded through the IHA must be declared in the application form. If projects rely on other sources of funding for the demonstration to go ahead, this funding must already be secured and evidenced at the point of application. If using public funding, applicants must also provide at application stage evidence that the granting authority gives consent for the funding to be used for the desired purpose alongside IHA funding. Please note that all forms of public funding (whether received through the IHA competition or elsewhere) will count towards the public funding intensities set for the programme (see **Section 4.2**). If considering the use of non-IHA public funds within their projects, applicants are further advised to consult the specific rules associated with the receipt of that funding.

Component(s) of the end-to-end chain could pre-exist, but no retrospective work will be funded. For example, the solar PV and electrolyser could already exist or be under construction, and the application could be for a hydrogen delivery system and innovative industrial end-use equipment to complete the chain.

Energy/feedstock inputs: The project may include low carbon energy/feedstock generation or sourcing as an input to the hydrogen generation process, where this enables the project and is not the main focus of the project. Non-exhaustive examples include a dedicated on-site wind turbine, electricity connection to a local generator, electricity grid connection or bioenergy processing. Capital costs associated with the energy/feedstock inputs and energy supply infrastructure to the hydrogen generation are in scope, but must not be the focus of the project or the funding. Note that for mature (high TRL) technologies and processes, BEIS can only provide funding towards the reasonable 'cost of use' of capital assets for the demonstrator, excluding the residual value at the end of the demonstration period (see **Section 21** for guidance on residual value calculations). Electrolyser projects should provide assurances that any potential constraints (i.e., local grid capacity) on electricity supply will be overcome. While primary energy generation is supported, it is not a requirement under the end-to-end criteria.

Hydrogen generation: The IHA programme is technology agnostic and does not explicitly exclude any hydrogen generation technology types. Applicants must confirm the hydrogen generation technology can be operational by January 2025 and will be low carbon by 2030. Projects will score more highly if the hydrogen generation technology used in the demonstrator meets the Low Carbon Hydrogen Standard (LCHS). In their application, projects should calculate the anticipated carbon intensity of the hydrogen in $gCO_2e/MJ_{H2,LHV}$ using the LCHS methodology; there is a hydrogen calculator tool available on the LCHS web page, although it is not essential for IHA applicants to use this. Calculations for the LCHS are at the point of production, so do not need to cover processes downstream of that point (e.g. hydrogen distribution and end-use) but do need to include the upstream emissions (e.g. from energy and feedstock inputs). Where possible, applicants should demonstrate compliance with the LCHS threshold of 20 $gCO_2e/MJ_{H2,LHV}$, as well as the other LCHS requirements e.g. temporal correlation of electricity usage to low carbon generator.

If the project cannot show full compliance with the LCHS, they should:

a) calculate the anticipated carbon intensity of the hydrogen in $gCO_2e/MJ_{H2,LHV}$ using the LCHS methodology, for the demonstrator phase and, where relevant, longer term
b) justify why the project provides significant value to the establishment of low carbon infrastructure and the objectives of the IHA programme.

Further guidance is available in the Low Carbon Hydrogen Standard documents. The full details on the reporting requirements[4] and evidence needed to calculate the treatment of input variability can be found in Annex A for electricity inputs, Annex B for natural gas inputs and Annex C for biomass and/or waste inputs in the LCHS documents. It is also worth noting that Section 6.4 in the LCHS guidance document has specific guidance on emissions accounting. Please note that projects which do not comply with the LCHS are unlikely to be eligible to receive Hydrogen Business Model revenue support (see **Section 2.3**).

Other hydrogen carriers and hydrogen blends: Other hydrogen carriers, such as ammonia, may be included, but must justify that their use is widely applicable to UK industry and fully compatible with a net zero future. They must be produced from hydrogen which meets the criteria outlined above. Carbon-based synthetic fuels, such as synthetic methanol or methane, are **not** eligible for this competition. Hydrogen blends are acceptable if the hydrogen component is low carbon, projects can be justified as innovative in their production or end-use, are widely applicable to UK industry and compatible with a net zero future. Applicants should show how blending is a stepping stone to 100% hydrogen use and outline their plan to achieve this.

Hydrogen delivery infrastructure: Projects will likely include hydrogen delivery infrastructure, such as pipework, storage and control systems. Innovation in these components is also welcome. However, delivery infrastructure which is not innovative must not be the focus of the project or the funding requested in the application. Delivery infrastructure should be a configuration that could be used long term, and projects will score higher if it is relevant and applicable to wider hydrogen roll-out and other industrial sites.

Hydrogen end-use: The core hydrogen end-use must be for an industrial process under industrial operational conditions (but these could be simulated at a pilot facility). Non-exhaustive examples include the use of hydrogen in furnaces, kilns, dryers and steam boilers to replace fossil fuels. Hydrogen can be used as an industrial feedstock and/or reductant; however, projects will score higher if the knowledge gained is widely applicable to UK industry, so projects would need to justify the applicability of the knowledge gained across other industrial sectors.

Operational costs: Operational costs will only be covered where essential for the demonstration to meet its objectives. The trial period is indicatively expected to be around 2 months, although longer trial periods are welcome.

[4] These reporting requirements are mandatory if the project is also aiming to receive hydrogen business model support. Projects only requiring IHA innovation funding may not need to follow the same process.

Multiple offtakers: The programme will allow projects which include multiple offtakers for the low carbon hydrogen. However, the core hydrogen end-use must be for industrial processes and a minimum of 50% of the hydrogen generated in the demonstration project in the timeframe of this competition funding must be used for the core industrial application(s). If any portion of the hydrogen is used for non-industrial end-use applications, BEIS will not provide funding for those end-uses or for the relevant portion of the hydrogen generation and delivery assets. Any justification of the residual value of capital assets will need to incorporate all end-uses and be clear, reasonable and well evidenced.

Project scale: We indicatively expect Stream 2B projects to be of the order ~1-7 $MW_{H2,HHV}$ equivalent; this is an indicative guide and not an eligibility criterion, so projects of any scale are eligible. However, considering the existence of Research, Development and Demonstration (RD&D) projects below 1 MW already in the UK, a project of this scale may be less likely to offer the level of knowledge-gain necessary at an industrial scale to score highly on the relevant assessment criteria.

Long-term plan: The IHA programme covers funding for feasibility and demonstration activities. However, it is important for BEIS to maximise the value and impact of these projects.

Proposed projects will therefore score better where the assets and knowledge will be used beyond the demonstration period to develop further evidence on industrial use of hydrogen. For example, subject to successful demonstration, the hydrogen generation and end-use assets could continue to be used commercially in the industrial setting they were built in, which could provide additional evidence on long-term operation of hydrogen equipment and systems. Alternatively, the assets could be repurposed for future innovation activities.

Projects will be required to ensure that knowledge gained during the project is widely disseminated, such as through events and reports (see section 11). Projects will be required to demonstrate their plans for such activities at application stage. We also encourage projects to use the knowledge gained to support further RD&D and deployment activities after the funded project is complete.

Location: All technologies within the end-to-end project chain must be located in the UK and over 50% of the project work (by value) should be conducted in the UK. There are no regional restrictions within the UK on where projects can be located. This includes (but is not limited to) industrial clusters, projects in dispersed industrial sites and in pilot facilities replicating industrial conditions. Projects may have hydrogen generation co-located with renewable energy inputs and/or with industrial sites, or at more centralised facilities where relevant.

Project delivery: Applicants should provide evidence that they have considered long lead time capital items and where these will be sourced from. Therefore, it is highly advisable that applicants engage with an organisation that can supply key capital items and provide evidence of this engagement as part of the proposal e.g. a letter of support.

Exclusions: Funding will not be provided for:

- Systems/solutions which are already **commercially or widely deployed** in the UK for industrial applications.
- Individual technologies or components being demonstrated in isolation are not eligible to apply for the competition, only complete end-to-end solutions. For example, a project to develop an electrolyser technology alone is not eligible.
- Hydrogen based power generation is not considered an industrial application unless the generator / CHP is integral to the industrial site / process, such as industrial sites which use the majority of the heat and power from a CHP unit. This must be justified in the application. A hydrogen-based power generation technology, such as a gas turbine, which is used primarily to provide mechanical work in an industrial process that previously used fossil fuels is eligible. A hydrogen-based CHP technology which is newly built on an industrial site to supply heat and power to the industrial process, and reduces fossil fuel use, is eligible. A hydrogen-based power generation technology which is newly built on an industrial site to supply a site electricity demand which was previously supplied from the electricity grid is not eligible. Hydrogen-based power generation primarily for grid export is not considered an industrial process under this competition.
- End-use of hydrogen for building space and hot water heating, however large, is not considered an industrial process. Equally, use of hydrogen for district heating for domestic, commercial and/or industrial building heat is also not considered an industrial process under this competition. Using a share of the hydrogen generated for such an application is permissible but these costs are ineligible (see multiple offtakers point above). Note that space heating within an industrial process (e.g. oven baking) is eligible.
- End-use of hydrogen for transport applications (including shipping) or other mobile applications, such as Non-Road Mobile Machinery (e.g. forklifts), is not considered an industrial process under this competition. Using a share of the hydrogen generated for such an application is permissible but these costs are ineligible (see multiple offtakers point above).
- Construction and mining and quarrying activities are not considered industry for the purposes of this competition, as these are supported through the BEIS Red Diesel Replacement programme. However, the use of hydrogen for industrial heat in an industrial process (e.g. industrial boiler/kiln) on a construction, mining or quarrying site is considered an industrial process for the purposes of this competition, and is not excluded on the basis of the sector.
- Projects focussed on energy and resource efficiency or fuel switching to electricity, biomass, waste or other non-hydrogen based fuels are excluded. Note that hydrogen fuel switching projects are still eligible and encouraged if they improve the energy/resource efficiency of the process. Note also that ammonia may be eligible (see above) but carbon-based synthetic fuels are not eligible.

Table 1 Scope of eligible costs along the end-to-end chain

Eligible cost items
Energy inputs to hydrogen generation: the eligible costs include low carbon energy generation (e.g. solar PV, wind, biogas generation) and the associated infrastructure (e.g. electricity grid connection, direct wire or pipeline), provided they are required for the demonstrator as an input to the hydrogen generation process and are not the focus of the project or of the funding requested.
Hydrogen generation, storage, delivery systems and end-use equipment required for the demonstration system are eligible.
Peripheral equipment and systems required for integration of demonstration components together and with industrial facility (e.g. control systems), are eligible, provided they are essential for the demonstrator.
Opex (Operating Expenditure) associated with the demonstration period (e.g. electricity costs and labour) are eligible. Opex for commercial operation is excluded.

Eligible costs for Stream 2B are those directly associated with the development and implementation of the end-to-end hydrogen demonstrator or FEED study; see Appendix 3: Eligible and Ineligible Costs for eligible costs for more information.

Please note that residual values of capital items should be considered, so that the eligible cost is only the use of the asset for the purposes of the demonstration (i.e. the depreciation). The size of the residual value at the end of the demonstrator will be dependent on the maturity (TRL) of the capital item. For example, for mature assets (e.g. solar PV), the eligible cost is only the depreciation costs for the duration of the project. Fully bespoke R&D assets may only have a value for the duration of the project so may have no residual value afterwards. More detail on residual value estimates can be found in **Section 21**.

Eligible costs are those associated with the demonstration, not the commercial deployment of the project or the wider infrastructure on the industrial or pilot site. However, the industrial goods/commodities (e.g. low carbon ceramics, oxygen) produced during the trial period can be sold on the open market and the assets installed during the funded activities can continue to be operated after the end of the demonstration period. Income generated through the sale of commodities produced during the demonstration cannot be used as match funding.

For FEED studies, the eligible costs are the engineering design and planning work covering the above scope of project and incurred by March 2025 in producing the final FEED report. This will typically include resource costs such as consultancy or staff time. In some instances, applicants may also need equipment to test or derive results necessary to the study and these costs are also eligible provided the findings are disseminated and included in the report. Standard equipment cost claims should reflect only the usage period relevant to the study, for example, based on depreciation or rental costs. Costs for the subsequent

construction/implementation of the project beyond the FEED study and period of funded activities are not eligible.

Applicants must indicate when completing their bid whether their organisation is able to recover VAT on project costs. VAT that you are able to recover from HM Revenue and Customs is not an eligible cost and cannot be claimed. Non-recoverable VAT is an eligible cost and can be included in the project costs in the Project Cost Breakdown Form. Grants are outside the scope of VAT and so non-recoverable VAT should be added into the 'excluding VAT' line on the invoice. Please include all the costs that you are expecting BEIS to pay for. The total funding requested should not exceed the maximum allowable amount per project.

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 costs supplied by the applicant will be the costs on which your application is assessed. If an application is successful, and the project costs subsequently increase, the applicant will need to cover the increase in costs. If the project costs transpire to be less than those of the project cost breakdown form, BEIS will only pay the actual costs incurred as evidenced by appropriate information (e.g. timesheets for labour costs and suppliers invoices for external costs).

Applicants should ensure that their cost estimates are as realistic and as accurate as possible, giving due cognisance to the forecast project start date given in this guidance document. Any assumptions applicants make for the effects of inflation in respect of materials or capital expenditure items shall be clearly stated and justified in their responses. Where such inflation allowances are made, these should be itemised in the cost breakdown form (example in Figure 2). Where such cost inflation effects are estimated and accounted for, the total cost of the project shall be deemed by BEIS to be a "not to exceed cost", and the total sum paid by BEIS for the grant may be less than this amount in accordance with the previous paragraph. This methodology for price inflation cannot be applied to the following cost categories:

i. labour and overheads;
ii. sub-contract;
iii. travel and subsistence; or
iv. other costs.

	Capital equipment item	Capital equipment description, explanation of use within the project and justification of cost	New purchase or existing item	Net Price Value of item at project start or purchase price
1	Capital item X	X is used to generate hydrogen. Spec XXX, supplier quote provided in Supporting information document	New Purchase	£1,000.00
2	Capital item X price inflation	Capital item X price inflation forecast between indicative quote Jan 23 and order placement in July 23 - 5% over 6 months. Based on YY source and supplier estimate in supporting information document.	New Purchase	£50.00

Figure 2 Example for representation of Inflation Allowances in the Cost Breakdown Form

For more information on types of eligible and ineligible costs, please see **Section 20**.

2.3. Other Funding and Support

A summary of the BEIS hydrogen funding landscape for 2022 and 2023 can be downloaded here.

Net Zero Hydrogen Fund (NZHF): The Net Zero Hydrogen Fund will provide up to £240 million in capital funding to support the development and construction of new low carbon hydrogen production plants. The aim of the NZHF is to support at-scale deployment of new low carbon hydrogen production projects during the 2020s. Projects must be TRL 7+ for permanent deployment, and end-use of the hydrogen is not included in the scope of funding.

Hydrogen Business Model (HBM): The hydrogen business model will provide revenue support to hydrogen producers to overcome the operating cost gap between low carbon hydrogen and high carbon counterfactual fuels. The HBM will stimulate private investment in new low carbon hydrogen production, by delivering revenue support funded by the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme.

A joint HBM / NZHF electrolytic allocation round (Strand 3) opened for applications in summer 2022, with awards to be made in 2023. BEIS have also announced a second joint allocation round opening in 2023; the inclusion of wider hydrogen production technologies for this allocation round is currently under consideration. Note that although these are joint HBM / NZHF rounds, applicants can apply for HBM **revenue support only**, or they can apply for joint HBM revenue support and capex support through the NZHF. IHA projects seeking operational funding for the hydrogen generation asset could apply to these funding rounds if they meet the eligibility requirements.

A project cannot apply to both the NZHF and the IHA for **capital funding** at the same time; the project must select the more appropriate source of capital funding. If a project is unsuccessful in the IHA programme, it can apply to a later round of the NZHF if it meets the eligibility requirements, once the project has further developed the required evidence.

Projects should monitor the NZHF/HBM announcements on gov.uk for further information on future funding rounds. Given IHA projects will need to have committed funding before HBM support is awarded, projects cannot rely on this source of funding to complete the IHA proposed project scope.

Industrial Energy Transformation Fund (IETF): The Industrial Energy Transformation Fund (IETF)[5] supports the development and deployment of technologies that enable businesses with high energy use to transition to a low carbon future. The IETF provides up to £30m in capital (capex) grant co-funding for decarbonisation deployment projects, as well as co-funding for feasibility and engineering studies. The IETF grants can support the onsite investments required to enable industrial fuel switching, where the chosen technology is TRL 7+. Fuel production activities, such as hydrogen generation, are not in scope for support. Projects should select the IHA or IETF based on which is a better fit for the project characteristics. If a

[5] Projects in Scotland should refer to the Scottish IETF

project is very uncertain which fund they are better suited to, they can contact the relevant teams. If a project is confident they are eligible for both funds, they may apply to both, but must declare this on the application forms and will not be awarded both sets of funding. The Phase 2: Autumn 2022 competition closes on 13 January 2023. This is the last currently planned application window.

Industrial Fuel Switching (IFS): The £55 million NZIP Industrial Fuel Switching competition supports innovation in the development of pre-commercial fuel switch and fuel switch enabling technology for the industrial sector, to help industry switch from high to lower carbon fuels. Funding is awarded through Small Business Research Initiative (SBRI) contracts, providing 100% funding for pre-commercial solutions. The IFS competition is now closed for applications. The previous Industrial Fuel Switching Competition finished this year and all the reports, including the demonstration reports, can be found on the web page.

Other public funding: Projects receiving other public funds (whether received from BEIS or any other UK or non-UK public funding) may still apply to the IHA. However, all forms of public funding will count towards the public funding limits and grant intensities set for the programme. For example, if a large organisation is eligible for 40% grant funding, the total public funding from all sources cannot exceed 40% of the eligible project cost. If the other funding is required for the IHA project to progress, funding must be confirmed at the point of the IHA Stream 2B application, and there must be no overlap in the scope of the costs covered. If considering the use of non-IHA public funds within their projects, applicants are further advised to consult the specific rules associated with the receipt of that funding.

2.4. Environment and Safety Considerations

Applicants will be required to consider the environmental and safety impact of their solution and the regulations which must be adhered to.

The Environment Agency is the principal regulator on environmental matters in England. The environmental regulators for Scotland, Wales and Northern Ireland are the Scottish Environment Protection Agency (SEPA), Natural Resources Wales (NRW) and the Northern Ireland Environment Agency (NIEA) respectively. We strongly encourage applicants to consider the possible environmental impacts of proposed projects, and ways to minimise any negative impacts, as early as possible, to ensure that sufficient detail can be provided at application stage. For example, emissions and air pollution, water use, waste, use of scarce materials, noise and visual impact. Please read and follow the regulatory guidance relevant to your technologies; some useful links and further guidance is found in Appendix 5: Environment and safety resources, as well as contact details of the relevant authorities.

Air Quality: Applications to the competition should demonstrate that they have considered the impacts of the fuels and processes associated with their project and the targeted technology on air quality, including within their local area. Applicants must prove that they have taken steps that meet (ideally go over and above) existing local and national air quality regulations, to reduce emissions and mitigate impacts that are damaging to air quality. The response should

also provide assurance that there is scope for the project/technology to be compliant with more stringent air quality regulations, which may be a requirement in future.

Where relevant, applications should pay attention to the damaging air pollutants that the UK currently has national emission reduction commitments for, including:

- fine particulate matter (PM2.5),
- ammonia (NH_3),
- nitrogen oxides (NOx),
- sulphur dioxide (SO_2), and
- non-methane volatile organic compounds (NMVOCs).

The gov.uk website provides guidance on air quality, including information on national and local regulations. As air quality is a devolved matter, regulations may vary amongst the devolved administrations.

Fugitive Hydrogen Emissions: Hydrogen itself can lead to global warming, with early research suggesting its Global Warming Potential is around 11±5 (see Fugitive Hydrogen Emissions study and Atmospheric Implications of Hydrogen study). Applicants to the competition should show that they have considered the level of fugitive hydrogen emissions (e.g. during start-up, shutdown and abnormal operation), throughout the technology chain / system, and made efforts to minimise these. Successful demonstration projects may also be expected to work with BEIS and BEIS contractors to monitor fugitive hydrogen emissions; IHA applicants are not required to incorporate this in their costing or planning at this stage.

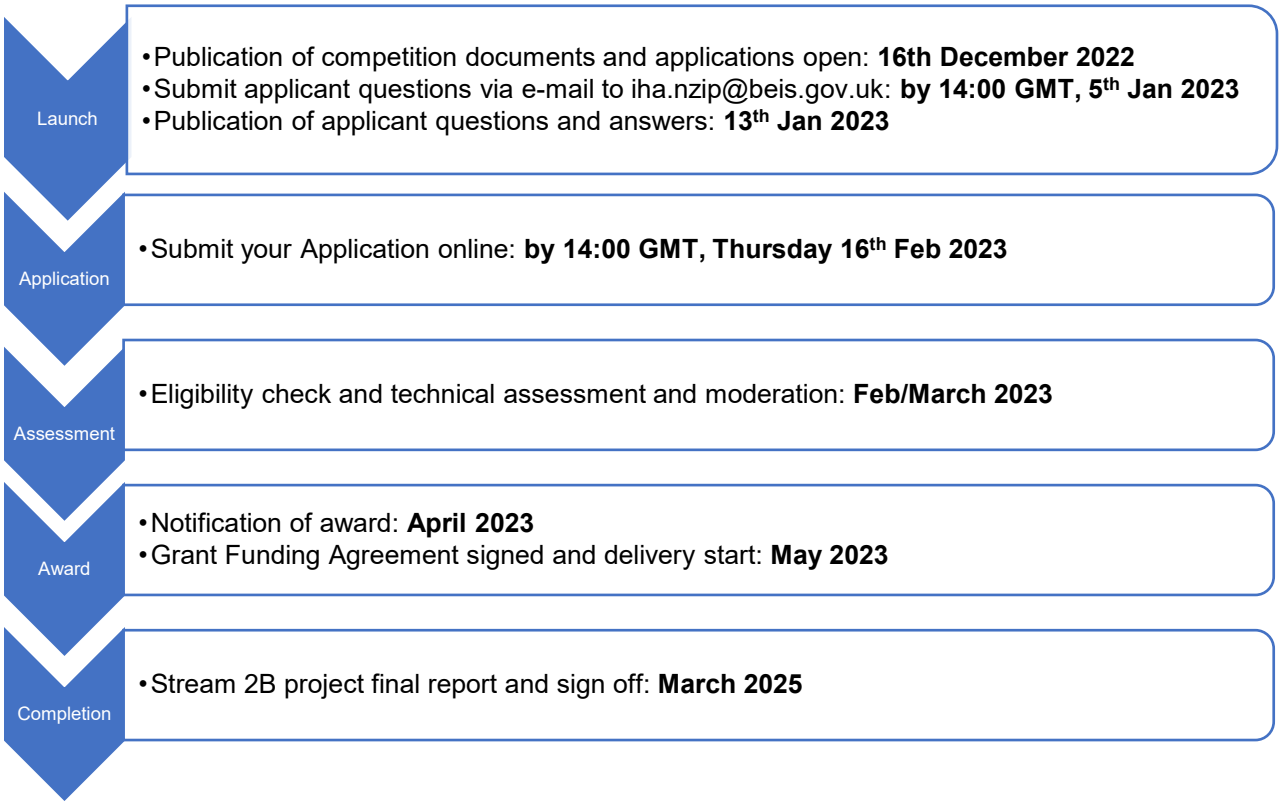
Safety: The safe demonstration of hydrogen is one of the most important aspects of this competition. Due to the relatively innovative nature of hydrogen use in many settings, the design and installation standards are not as well developed as those for natural gas and LPG. However, the principles of the handling of hydrogen as an industrial gas are well known. IGEM has published the IGEM/H/1 standard and is updating IGEM/SR/25 and IHA applicants are expected to follow these where appropriate. The British Compressed Gases Association also provides detailed guidance. The primary regulations that will govern the handling of Hydrogen and the associated infrastructure are DSEAR (Dangerous Substances and Explosive Atmospheres Regulations), COMAH (Control of Major Accident Hazards) and PER (Pressure Equipment Regulations). The controlled quantity of Hydrogen for The Planning (Hazardous Substances) Regulations 2015 is 2 Tonnes. Hydrogen is a named dangerous substance under COMAH regulations. The threshold quantities are 5 Tonnes (lower tier) and 50 Tonnes (upper tier); more information can be found here. In the medium term the Health and Safety Executive (HSE) will regulate hydrogen under the Health and Safety at Work Act (HSWA) 1974, and will expect organisations to adopt both the principles and details (where appropriate) of the GS(M)R 1996 and the GS(I&U)R 1998. This means in practice the direct involvement of the HSE in relatively small and simple hydrogen installations is likely to be modest. For more information on safety expectations of IHA demonstrator projects see Appendix 5: Environment and safety resources.

3. Competition Timetable, Application and Assessment Process

3.1. Competition Timetable

Stream 2B is a demonstration/ FEED stream. Key dates applicable to Stream 2B of the competition are shown below. Please note BEIS reserves the right to vary these dates.

Figure 3 Stream 2B Timeline



Stream 2B projects must be fully complete and signed off by March 2025 and there is no flexibility in this. For demonstration projects, the demonstration of the end-to-end system must be complete by February 2025; we expect the demonstration period, after construction and commissioning, to be of the order 2 months. Stream 2B draft project report (for demonstrations and FEED studies) must be completed and sent to BEIS for approval by Friday 7 February 2025.

3.2. How to Apply

Please make sure you have read this guidance before starting your application.

To apply to the IHA Stream 2B competition, bidders must complete the IHA Stream 2B online application form. An offline Word copy of the application form is available on the competition

website for reference and to support the development of application content prior to using the application system.

If you have any questions about the competition, please submit them by 14:00 GMT, 5 January 2023 to iha.nzip@beis.gov.uk; questions submitted after this deadline may not be answered. We will provide replies to any questions which, in our judgement, are of material significance, through an online anonymised FAQ sheet published on the IHA Website by 13 January 2023. All applicants should take the answers to the clarification questions (Q&A) and this competition guidance into consideration when preparing their own bids. BEIS will evaluate bids on the assumption that they have done so.

The full proposal must be submitted via the online application form by 14:00 GMT, 16 Feb 2023. Any supporting materials must be attached to the online application form and in line with the guidance on such materials. Please see **Section 16** for guidance on completing the application form and associated supporting materials. Please note that each supporting document cannot exceed the size limit set within the application form, so we advise checking these in advance.

BEIS strongly recommends that you begin to complete the online application form several days before the application submission deadline, to ensure that you leave ample time to complete and submit the entire application. Applications (or any part of an application) submitted after the deadline will not be accepted. You must have uploaded all supporting information and declarations and clicked 'submit application' by the application deadline.

You can save your application at any time by clicking "Save and Continue Later". You will then be e-mailed a link which you can use to return to your application and complete it.

You may also find it useful to review the offline application form, available through the IHA Website. This is a Word document copy of the questions that will be asked of you in the online application form, which you can use to view the sequence of all the questions and to plan your time allocation or content prior to submitting your application. The offline Word document is **for reference only and cannot be submitted as your application**. All applications will need to be completed and submitted through the online platform.

Alongside the offline Word application form, you will find offline examples of the forms and declarations you need to complete and return with your application. In your online application, you will be provided with links to download these forms and declarations. You then need to sign them (**please note you cannot do this directly in the application platform**) and re-upload them to your application.

If you have any enquiries regarding your online application, please contact:
iha.nzip@beis.gov.uk

3.3. Submission Content

Each proposal must include the following:

Completed application form (online), including attachments:

- IHA technical performance excel, an Excel spreadsheet of technical parameters of your system (a template is on the IHA website)
- IHA Stream 2B Project Cost Breakdown Form (a template is on the IHA website)
- Project work package description
- Project Gantt chart
- Project organogram
- Project risk register
- Project Team CVs
- Referenced Figures document (optional)
- Letters of support (optional)
- Supporting information document (optional)
- Partner Information Form (if you have project partners, and this can be found on the IHA website)

The following forms are downloadable from the IHA website; applicants must complete, sign and re-upload these to their application:

Declarations - applying as a collaborative project, the lead applicant should collate declarations from partners and subcontractors to upload:

- Declaration 1: Statement of non-collusion
- Declaration 2: Form of bid
- Declaration 3: Conflict of Interest
- Declaration 4: Code of Practice
- Declaration 5: Modern Slavery Statement
- Declaration 6: Standard Selection Questionnaire (SSQ) Parts 1, 2 & 3
- Declaration 7: The UK General Data Protection Regulation Assurance Questionnaire for Contractors

Any supporting materials must be attached to the online application form.

You should endeavour to answer all questions on the application form in full. Incomplete applications and any containing incorrect information will very likely be rejected although 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**. Please do not leave the uploading of your bid to the last few days – please plan ahead and prepare well in advance.

3.4. Key information about your application

Application costs: You will not be entitled to claim from BEIS any costs or expenses that you incur in preparing your bid, whether or not your proposal is successful.

Bid Validity: Bids shall be valid for a minimum of 120 calendar days from the submission deadline**.**

Where required, your application may be shared with other government departments or public authorities during the assessment and due diligence phase to ensure there is no overlap between funded projects. Your public project description may be shared with others in BEIS and wider government for information purposes.

Consortia: Bids may be submitted by single applicants or project teams (consortia). For consortium bids, only one application should be submitted for each project.

The lead organisation must sign up to the terms and conditions outlined within the Stream 2B Grant Funding Agreement. How the consortium manages the commitments that the lead organisation makes on its behalf is the responsibility of the consortium.

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

Stream 2A and Stream 2B applications do not need to be led by the same organisation, but there must be justification for the change and significant continuity in the project team. The Stream 2A project lead must remain as a partner organisation in Stream 2B and have a significant role in Stream 2B delivery. Any new companies involved in an application to Stream 2B will also need to complete the relevant declarations and pass the commercial and financial due diligence checks.

If a consortium is not proposing to form a separate corporate entity, the project partners will need to complete a consortium agreement. We would expect to see included the following non-exhaustive list:

- Arrangements for the management and coordination of the project
- Responsibilities (including funding) and liabilities of the partners

- IP arrangements
- Reporting and publication arrangements, access to results and confidentiality provisions
- Consequences of termination or default and ways of handling disputes

Please note that a consortium agreement will not be required at application stage, but must be provided within one month of the funding agreement being signed. Funding will not be paid by BEIS until a signed consortium agreement has been finalised between all the members of the project consortium. 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 2015 (as amended by the Public Procurement (Amendment etc.) (EU Exit) Regulations 2020).

Applicants will be required to provide information about their partners at application stage by completing the Partner Information Form (Annex 5B) and attaching it to the online application form.

For the purposes of the IHA competition, a project partner is likely to be an organisation responsible for the delivery of a significant innovative programme element or standard service; partners must sign the consortium agreement and use a grant intensity appropriate for their organisation and activity. A sub-contractor is likely to be an organisation delivering a standard service, as organised through a separate contract at market value. Sub-contractors will not be required to sign the consortium agreement. Subcontractors delivering more than 10% of the work (by value) must be named in the application, with information provided on the organisation size, what work they will be delivering, where the work will be located, who they are subcontracted to, justification for subcontracting the work, and evidence of their commitment to the project (e.g. a signed letter of support). If a small organisation, receiving a higher grant intensity, is subcontracting a significant portion (>20%) of labour or services to a large organisation, BEIS will review at assessment and due diligence stage whether this is appropriate and whether the funding requested is at an acceptable level; clarifications may be required. Sufficient detail and evidence for subcontractor costs is required in the stipulated documents e.g. in the Project Cost Breakdown Form. Typically a supplier supplies goods, whereas a subcontractor supplies services.

3.5. Contract Award

Stream 2B Grant Funding Agreements are expected to be awarded in **April 2023 and signed in May 2023**. Please note that BEIS reserves its right to not award any grant agreements under this competition.

The terms and conditions will be based on the BEIS template Grant Funding Agreement provided in Annex 1A**.** These terms and conditions are final and non-negotiable: by applying to the competition, you are agreeing to these terms and conditions.

There will be an opportunity for successful applicants, prior to the grant funding agreement being signed, to discuss the funding agreement at a meeting with official(s) from BEIS. The BEIS official(s) will explain the terms and conditions and respond to any queries which the applicant may have at this stage, but they will not allow any changes to be made to the funding

agreement. It is crucial that all applicants review the terms and conditions prior to the submission of their application and ask any questions prior to submitting the bid.

For consortium bids, the lead company (project co-ordinator) will be the recipient of the funding agreement and will be responsible for managing payment to the other project partners.

4. Budget and Restrictions on Funding

4.1. Competition Budget and Availability

The total budget available for the Industrial Hydrogen Accelerator programme is up to £26 million. The programme will be delivered through three funding streams: Stream 1, Stream 2A and Stream 2B.

The total budget available for the Stream 2B competition is up to £20 million. Projects can be awarded up to £7m for a demonstration project, of which up to £3.5m can be FEED. Projects only planning FEED will only be awarded up to £3.5m. The competition funding will be awarded via grants.

Projects which meet the minimum assessment threshold will be ranked by total score and allocated funding in order of merit until the available funding is utilised or there are no more suitable projects (whichever comes first).

BEIS reserves the right to allocate more or less than the total budget depending on the number and quality of applications received and budget availability. In the event of securing additional budget, BEIS can award funding to additional projects at any point. Bidders should not rely on there being further funding available for the competition in excess of the allocated budget. BEIS may also, at its discretion, choose not to make an award or allocate an award that is less than the total budget depending on the quality of applications.

IMPORTANT INFORMATION

No Reliance

Nothing in this funding call requires BEIS to award any applicant a funding agreement of any particular amount or on any particular terms. BEIS reserves the right not to award any funding agreements.

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

4.2. Grant Funding Intensities

The Stream 2B Competition will support successful applicants through subsidies awarded in the form of grants towards the eligible costs of the proposal. Since 1 January 2021, public authorities must comply with the UK's international commitments on subsidies as set out in the UK-EU Trade and Co-operation Agreement (TCA), the Northern Ireland Protocol (where applicable), other trade agreements, as well as the WTO (World Trade Organisation) rules on subsidies[6]. This section specifies the types of costs that applicants can claim grant support for, as well as the maximum level of grant funding that they can receive which may differ by organisation type, size, and location.

BEIS will operate within the UK-EU TCA requirements and WTO rules.[7] The funding rules set out in this Guidance Document for Stream 2B of the IHA competition are specific to this Competition only.

The rules set out in this document apply equally to all applicants from England, Wales, Scotland, and Northern Ireland that are eligible to receive funding (except where specifically indicated below, regarding the definition of a parent and associated grant intensity requirements). Grants awarded to applicants and partner organisations from Northern Ireland will also be subject to scrutiny from the European Commission in accordance with Article 10 of the Northern Ireland Protocol in the UK/EU Withdrawal Agreement.[8]

If a business or any enterprise has been incorrectly in receipt of grant funding, that enterprise is likely to be required to repay any subsidy received to the value of the gross grant equivalent.

Definitions
The following definitions will apply:

Business means an organisation undertaking economic activities. As given in **Table 2**, businesses are categorised as small, medium or large determined by both their:

- staff headcount; and,
- either turnover or balance sheet total

Table 2: SME definition

Company category	Staff headcount	Turnover	OR	Balance sheet total
Medium	< 250	≤£45m		≤£39m

[6] https://www.gov.uk/government/publications/complying-with-the-uks-international-obligations-on-subsidy-control-guidance-for-public-authorities
[7] https://www.gov.uk/government/publications/complying-with-the-uks-international-obligations-on-subsidy-control-guidance-for-public-authorities
[8] https://www.gov.uk/government/publications/complying-with-the-uks-international-obligations-on-subsidy-control-guidance-for-public-authorities/technical-guidance-on-the-uks-international-subsidy-control-commitments#section7

Small	< 50	≤£9m		≤£9m

Applicants will be required to specify whether project costs classify as Experimental Development or Industrial Research in the Project Costs Breakdown Form at application stage.

Experimental Development means acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aimed at the conceptual definition, planning and documentation of new products, processes or services.

Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real life operating conditions. 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 not 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.

Industrial Research means planned research or critical investigation to gain new knowledge and skills. This should be for the purpose of product development, processes or services that lead to an improvement in existing products, processes or services. It can include the creation of component parts to complex systems and may include prototypes in a laboratory or environment with simulated interfaces to existing systems, particularly for generic technology validation.

Research and Knowledge Dissemination Organisation means an entity (such as universities or research institutes, technology transfer agencies, innovation intermediaries, research-oriented physical or virtual collaborative entities), irrespective of its legal status (organised under public or private law) or way of financing, whose primary goal is to independently conduct fundamental research, industrial research or experimental development or to widely disseminate the results of such activities by way of teaching, publication or knowledge transfer. Where such entity also pursues economic activities, the financing, the costs and the revenues of those economic activities must be accounted for separately. Undertakings that can exert a decisive influence upon such an entity, in the quality of, for example, shareholders or members, may not enjoy preferential access to the results generated by it.

Grant Intensities

The maximum amount of grant funding that can be provided towards project costs (as a percentage of the overall eligible project cost) is summarised in **Table 3**. The maximum

funding level available varies by organisation size and research category (activity). These maximum grant intensities apply to applicants and, if relevant, consortium partners.

If an application or partner business has a parent company, the data concerning the parent company and the applicant company (cumulatively) must be used when calculating the organisation size (as outlined in Table 2) and subsequent maximum grant intensity (as outlined in **Table 3**). For applicants and project partners based in Great Britain, a parent company is defined as an enterprise with controlling interest (>50% control) of the subsidiary company.

For applicants or project partners based in Northern Ireland, for the purposes of the IHA competition, the definition of a parent company includes any 'partner enterprise(s)' or 'linked enterprise(s)' as defined in Annex I of the guidance linked in the footnote below.[9] When calculating the organisation size (as outlined in **Table 2**) and subsequent maximum funding entitlement (as outlined in **Table 3**), applicants & project partners based in Northern Ireland must adhere to the instructions outlined in Annex I of the linked guidance.

Table 3: Maximum Grant Intensities

Research Category (type of innovation activity)	**Organisation Size**	**Maximum amount of public funding towards total eligible Project Costs**
Industrial Research (collaborative)	Small	80%
	Medium	75%
	Large	65%
Experimental Development (collaborative)	Small	60%
	Medium	50%
	Large	40%

Match funding must be provided for Stream 2B. Confirmation that match funding will be available must be provided at application stage, for example a Letter of Intent from the funder/investor specifying their intent/agreement to provide an amount of funding and any conditions on that funding. This can be included in the Supporting Information document.

Further evidence of match funding must be provided in advance of the first payment milestone e.g. evidence of match funding for the FEED phase and a letter of intent (with any conditions) for any further funding, such as for demonstrator build. Match funding for the whole project must be confirmed/approved and evidenced for the first stage gate (approx. 6 months into delivery); the evidence provided could, for example, be a bank statement, Memorandum of Understanding or agreement within the signed consortium agreement.

Debt and equity are acceptable sources of match funding, provided that this is accessible and projects are able to provide evidence of the availability of this funding by the first project milestone. In circumstances where equity or debt is not accessible for use against project costs by the first milestone, for example where equity has not been sold/released, this would not be

[9] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02014R0651-20210801

an acceptable form of match funding. In kind contributions such as staff time can be included in the match funding total, as long as they relate to eligible project costs, are appropriately costed at a fair market value, and are robust, realistic and justified in terms of the proposed project plans.

Requirements

It is a requirement of receiving this funding that projects ensure that the results of the project are widely disseminated through conferences, publication, open access repositories, or free or open source software. See **Section 11** for more information.

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

Grant recipients must adhere to all Subsidy Control obligations set out in the Grant Funding Agreement. Failure to do so may result in termination and clawback of funding.

If an applicant breaches the grant funding requirements for this Competition, for whatever reason, BEIS requires repayment of any grant received, including interest, above that which was due. In this situation applicants will be required to repay any funding received.

Whilst applications cannot be led by universities, we welcome university consortium partners when they can add value; there is no requirement to have academic involvement in an application. As with other government funding bodies funding higher education institutions, we will not pay more than 80% of the Full Economic Costs (FEC) calculated using the Transparent Approach to Costing (TRAC) methodology. Any applications requesting items that would ordinarily be found in a department, for example non-specialist computers, should include justification. Where applicable, other research organisations (i.e. Research and Technology Organisations) that are not higher education institutions, can receive up to 100% funding if they are **not** undertaking economic activities in the project.

Advice for Collaborative Applications

For collaborations containing different sized enterprises or research organisations, funding intensity is related to the partner company (and/or parent company if applicable) receiving the subsidy. Hence for example, for a collaborative Industrial Research project: a large enterprise consortium member can only be reimbursed up to 65% of its costs, whereas a small enterprise collaborator/partner can be reimbursed up to 80% of its costs. Similarly, for a collaborative Experimental Development project: a large enterprise consortium member can only be reimbursed up to 40% of its costs, whereas a small enterprise consortium member can be reimbursed up to 60% of its costs.

If you are applying to Stream 2B as a collaboration and your application is successful, you must also submit a copy of for your consortium agreement within a month of the Grant Funding Agreement being signed. BEIS will review the consortium agreement before any grant payment is made to ensure that proposed collaborations are viable and robust. For

collaborative projects BEIS will only issue a grant to a single legal entity, so collaborative bids will be required to appoint a lead organisation/applicant for grant award. The lead organisation may differ from Stream 2A.

For the purpose of the Industrial Hydrogen Accelerator Stream 2B competition, projects may include a mix of industrial research and experimental development related costs. For such projects the maximum subsidy levels will be based on the individual thresholds for that type of research activity (further guidance can be found in the IHA Stream 2B Project Cost Breakdown Form).

For example, a project led by a small business 25% of whose costs classified as industrial research and 75% classified as experimental development would have a maximum subsidy threshold, based on project out-turn costs, of 65%. A large business consortium partner 50% of whose project costs classified as industrial research and 50% classified as experimental development would have a maximum subsidy threshold, based on project out-turn costs, of 52.5%. This scenario is demonstrated in **Table 4**.

Table 4: Maximum subsidy thresholds for research categories, as based on project out-turn costs

Business Size	**Research Activity**	**Maximum Subsidy Threshold**	**Percentage of project**	**Effective Subsidy Threshold**
Small business	Industrial Research	80%	25%	20%
	Experimental Development	60%	75%	45%
Maximum project subsidy rate	65%			
Large business	Industrial Research	65%	50%	32.5%
	Experimental Development	40%	50%	20%
Maximum project subsidy rate	52.5%			

Whilst BEIS will check the information provided to try and ensure that applicants meet the requirements of the subsidy categories, it is the responsibility of applicants to establish that they fall within the thresholds before submitting applications. BEIS requires applicants to notify them of any change to situation or circumstance during the project.

Calculating Other Public Funding

When considering levels of subsidy (described above), public funding includes the grant and all other funding from, or which is attributable to, other government departments, UK public

bodies, other Governments or Government organisations. 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 competition, you must state if you are applying for, or expect to receive, any funding for your project from public authorities (in the UK or elsewhere). Any other public funding will be cumulated with BEIS funding to ensure that the public funding limit and the subsidy intensity levels are not exceeded for the project. Public funding cannot be used as part of the match funding contribution.

Whilst BEIS will check the information provided to try and ensure that applicants meet the requirements of the subsidy categories, it is the responsibility of applicants to establish that they fall within the competition rules before submitting applications. BEIS requires applicants to notify them of any change to situation or circumstance during the project. It is essential to ensure that the total grant funding for the project from public sources does not exceed the permitted percentages stated for the relevant subsidy category.

For any breach of subsidy requirements, please consult the generic grant funding agreement (GFA) that BEIS will be providing with this Guidance. Grant recipients must adhere to all Subsidy Control obligations set out in Clause 15 of the Grant Funding Agreement. Failure to do so may result in termination and clawback of funding as per Clause 26.

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.

5. Eligibility for Funding

5.1. Competition Eligibility Criteria

To be eligible for funding under Stream 2B of IHA, proposed projects must meet all the following eligibility criteria. These will be listed in the online application form as the Yes/No questions exemplified below. BEIS will consider all information on the application form when reviewing project eligibility. If, after reading this competition guidance, you are still uncertain whether your project is eligible, organisations may seek clarifications on eligibility by sending an email to iha.nzip@beis.gov.uk during the Q&A clarification window.

1. Technology and Project Scope

The competition is looking to fund innovation in end-to-end hydrogen fuel switching in industrial applications. Projects must include hydrogen generation, hydrogen delivery infrastructure and industrial end-use in a robust chain as a single project.

For demonstrator applications, the application must confirm the hydrogen generation technology can be operational by January 2025 and low carbon by 2030. For FEED applications, we would expect Final Investment Decision (FID) to be taken shortly after the FEED study is complete with a view to demonstrating or implementing an innovative low carbon hydrogen solution by the end of 2026.

The core hydrogen end-use must be for industrial processes under industrial operational conditions (but these could be simulated at a pilot facility). A minimum of 50% of the hydrogen generated in the demonstration project in the timeframe of this competition funding must be used for the core industrial application(s).

Please **see Section 2.2 for more detail** on stipulations and exclusions of the project scope.

Eligibility question: Is this project and technology in scope? YES/NO

2. Innovation and Technology Readiness

The competition is to support the development of innovative hydrogen fuel switching solutions, which are not yet in commercial operation. The end-to-end industrial hydrogen system will likely be made up of component technologies, some of which may be more mature than others. There are no specific technology readiness levels required for the component technologies, but projects must be able to justify that the full solution and/or specific technologies within it are innovative and unproven prior to launch. This includes confirming that the system can't currently be procured as a whole on the open market and there is uncertainty over its success. Note that individual components are permitted to be mature/commercially available.

Eligibility question: Is this proposed system innovative and pre-commercial? YES/NO

3. Project Activity

BEIS is unable to fund retrospective work on projects.

Eligibility question: Can you confirm that your application does not seek funding for retrospective work on this project? YES/NO

4. Project Continuity

Each Stream 2A project can only apply once to Stream 2B and the project scope should not be materially different than that proposed at Stream 2A application stage. The Stream 2B project should focus on the same core innovation / system and there should be a clear linear continuation from the Stream 2A project. Material project modifications can be discussed with BEIS.

Stream 2A and Stream 2B applications do not need to be led by the same organisation, but there must be justification for the change and significant continuity in the project team. The

Stream 2A project lead must remain as a partner organisation in Stream 2B and have a significant role in Stream 2B delivery. The Stream 2A project monitoring officers and Stream 2B assessors will consider whether the Stream 2B project is eligible or has changed materially in scope or project team from Stream 2A.

Eligibility question: Is your Stream 2B project a continuation of the Stream 2A work and does it focus on the same core innovation or system? YES/NO

Eligibility question: Can you confirm that there is significant continuity in the project team between Stream 2A and 2B? YES/NO

Eligibility question: Have you submitted your Draft Feasibility report for Stream 2A? YES/NO

5. Project Timescale

It is anticipated that project delivery will begin in mid-May 2023. Stream 2B draft final report must be completed and sent to BEIS for approval by Friday 7th February 2025. The BEIS monitoring officer will review the report and feedback accordingly by Friday 28th February 2025. All project work related to the demonstrator/FEED, including the final approved BEIS report, must be completed by Friday 7th March **2025**.

Eligibility question: Can you confirm that your project will be completed within the timescales set out? YES/NO

6. Additionality

Projects can only be funded where evidence can be provided that innovation would not be taken forwards (or would be taken forwards at a much slower rate) without public sector funding.

Eligibility question: Can you confirm that this project would not be taken forward (or would progress at a much slower rate) without public sector funding? YES/ NO

7. Contract Size and Funding

The maximum BEIS funding available for a demonstration project will be £7 million, or for a FEED project £3.5 million. Stream 2B will be a grant competition, so the project teams must provide match funding in accordance with the guidance set out in in **Section 4.** Any other public funding required to deliver the project must be confirmed at 2B application stage and cannot be used towards the match funding contribution.

Eligibility question: Can you confirm the funding requested from BEIS for your Stream 2B project does not exceed £7 million per demonstration project, or £3.5 million per FEED project? YES/NO

Eligibility question: Can you confirm that you are able to source the required match funding for this project and that any other public funding required is already secured? YES/NO

8. Eligible Project Costs

The eligible costs are set out in **Section 2.2** and Appendix 3: Eligible and Ineligible Costs. Guidance on capital costs and residual value is given in Appendix 4: Residual Values . The grant intensity thresholds are given in **Section 4.2**. Funding can only be used for activities and items directly required for the proposed project.

Eligibility question: Can you confirm that requested funding is for eligible costs and meets the grant intensity thresholds? YES/ NO

9. Knowledge Sharing

Projects will be expected to share the knowledge gained through the funded activities widely and publicly. See **Section 7** for deliverables and **11** for dissemination requirements.

Eligibility Question: Do you agree to share the knowledge gained widely and publicly? YES/NO

10. Applicants and Project Team Composition

Stream 2B applications can be led by a single organisation or by consortium. For consortium bids, a single project application must be submitted by the lead project member (the project co-ordinator) on behalf of the consortium.

Stream 2B applications must be led by private organisations or research and technology organisations (RTO) and may not be led by universities or non-commercial organisations. Similarly, other Government Departments, Agencies and local authorities are not eligible to enter as the lead applicant for any IHA stream, but they can act as a project partner or sub-contractor. Special Purpose Vehicles are permitted to lead projects only if they are constituted as legal entities.

Eligibility Question: Do you confirm that this project is led by a private organisation or RTO? YES/NO

Eligibility question: If you or a member of your consortium are part of multiple funding applications, would you and/or they be able to successfully deliver all projects, if

necessary? YES/NO/Not Applicable

11. UK Requirements

Projects can work with international partners, but over 50% of the funded project work (by value) must be conducted in the UK. The physical demonstrators, or projects which are the subject of the FEED study, must be located in the UK.

Eligibility question: Can you confirm that > 50% of the work (by value) will be carried out in the UK and the demonstrator (or future project for FEED studies) would be located in the UK? YES/NO

5.2. General BEIS Conditions

Applicants must not meet any of the BEIS grounds for mandatory rejection, and as a general rule they should not meet any of the BEIS grounds for discretionary rejection (see Appendix 6: Exclusion Grounds). Applicants will be required to declare this as part of completing the Standard Selection Questionnaire.

There are seven declaration forms to be completed (see **Annex 2A**):

- Declaration 1: Statement of non-collusion
- Declaration 2: Form of bid
- Declaration 3: Conflict of Interest
- Declaration 4: Code of Practice
- Declaration 5: Modern Slavery Statement
- Declaration 6: Standard Selection Questionnaire (SSQ) Parts 1, 2 & 3
- Declaration 7: The UK General Data Protection Regulation Assurance Questionnaire for Contractors

These declarations can be downloaded from the competition website. All declarations must be signed and uploaded to the online application by the applicant.

5.3. Conflicts of Interest

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

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

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

This is managed in the procurement process as follows:

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

Applicants will be subject to financial viability checks, as described in **Section 9.1**. The outcome of BEIS financial due diligence may result in preferred bidder(s) not being awarded a Contract.

6. Assessment Process and Criteria

All applications will be considered initially against the competition eligibility criteria (described in **Section 5**). Applications which fail the eligibility criteria will not be assessed further, so it is essential to ensure that your project meets these criteria before you submit your application. Ineligible applications will receive brief feedback on the reason for their ineligibility. Eligible projects will be further assessed against the assessment criteria described in **Section 6.1** by **a minimum of 3** reviewers, which may include external reviewers[10].

Project scores will then be moderated to determine a ranking list for Stream 2B that will be used to allocate the funding, starting from the highest scoring projects. To be eligible to receive funding, a project must achieve a moderated score of at least 2 out of 5 against each sub-criterion (or criterion if there are no sub-criteria), with a minimum total weighted score of 60%. If budget is available after the initial award, additional projects may be funded in line with the process described in **Section 6.3**.

The Application Form and these Guidance Notes are designed to inform you about the types of information you should be prepared to provide to BEIS in your online application. The individual bullet points listed under the assessment criteria headings in **Section 6.1** are not assessment sub-criteria but are an indication of the factors considered when assessing each proposal, so applicants should aim to address all of them to achieve high marks.

6.1. Assessment Criteria

There are four assessment criteria for Stream 2B, some of which are broken further into sub-criteria, as shown in Table 5. Each sub-criterion will be awarded a score of 1 to 5 based on the scoring guidance summarised in **Section 6.2**.

Table 5 Summary of assessment criteria

Criteria	Criteria weighting	Sub-criteria	Sub-criteria weighting
1 Innovative solution	10%	Innovative solution	10%
2 Performance	35%	a) Performance and feasibility	15%
		b) Cost of solution	10%
		c) Emissions, environment and safety	10%
3 Project financing	25%	a) Project cost breakdown form	10%
		b) Additionality and value for money	15%
4 Project delivery plan	30%	a) Delivery plan and risk management	15%
		b) Skills and capabilities	10%
		c) Knowledge sharing	5%

[10] All external reviewers will have signed up to adhering to strict conflicts of interest and confidentiality terms.

Criterion 1: Innovative solution (10%)
Guidance for criterion 1: • Explain what the proposed hydrogen solution is and summarise its benefits. Give an overview of the project to be carried out, and outline the proposed Stream 2B project objectives. Provide evidence that the integrated system is a robust end-to-end hydrogen system (i.e. it is a full system configuration that, if successful, could reasonably be utilised and/or scaled up for use long term on a commercial basis). Describe how the project will support the IHA competition objectives (see **Section 1.4**). • Describe how the proposed system is innovative and novel and outline the core innovation(s) in the project. Explain whether any similar technologies exist, and how your proposed approach is different. Use of 100% hydrogen in the end-use will be considered more innovative than hydrogen blends. • Summarise the work that has been done to date on the solution. Describe what technological progress will be made through the project and the potential for knowledge gain in the system and technologies. Estimate and justify the Technology readiness level (TRL) of the system and separately its component technologies, at the start and end of the proposed project. Higher marks will be awarded to answers where the project is: clearly described; will strongly support the competition objectives; is innovative; and will lead to a large amount of technological progress. Demonstration projects are likely to score better than FEED work on this criterion as their outcome would better meet the objectives of the programme and the evidence developed is likely to lead to more technological progress on industrial decarbonisation.

Criterion 2: Performance of solution (35%)
Criterion 2a: Performance and feasibility (15%)
Guidance for criterion 2a: *Please fill out the excel provided "IHA technical performance excel" for the key technical parameters and attach this with your answer; this will be assessed as supporting evidence. Where needed, distinguish between the pilot/demonstration scale and commercial industrial scale system in your answer.* • Justify why hydrogen is the best decarbonisation route for this process/site, considering technical and economic factors. Show that you have considered other decarbonisation options (e.g. direct electrification) and explain, with evidence, why they are not possible/favourable.

- Describe the performance of all individual technologies in the proposed system (e.g. hydrogen generation, transport, storage and end-use). Justify why these specific technologies have been chosen and why this is the best design of the system (e.g. technology choice, configuration/integration, capacity).
- Provide an assessment of the overall system performance, including efficiency, reliability, availability, expected maintenance requirements and potential impact on product quality. Compare the solution to the current process and alternative options.
- Provide evidence that the proposed approach is technically feasible, providing justifications for all technical data provided. Summarise outstanding technical challenges and how the project will address these.
- Describe how the performance of the solution will be further validated through the demonstration/FEED. Describe how your project will prove or improve knowledge about the long term feasibility, reliability and viability of the solution.
- Describe (and if possible quantify) the applicability, adaptability and scalability of the solution and wider knowledge across UK sector(s), particularly industry. Estimate the proportion of UK industrial CO_{2e} emissions which could be mitigated by this system or the core technologies within it. Outline your long-term development plan for the system/solution and/or the component technologies and any plans for promoting wider use.

Higher marks will be awarded to answers which comprehensively and clearly evidence that the project/solution has strong performance, good design, strong evidence on technical feasibility and the knowledge gained is widely applicable to UK industry.

Criterion 2b: Cost of solution (10%)

Guidance for criterion 2b: *note that this criterion is primarily about the cost of the solution when deployed, and not the cost of the 2B project delivery.*

- Describe and evidence the estimated costs of the solution. This should include at a minimum the estimated levelized cost of hydrogen generation (£/MWh) and the levelised cost of abatement of the system (£/tCO_2e abated) when deployed at commercial scale, excluding carbon pricing. For energy from the grid, use Green Book data tables where relevant, or justify alternative assumptions. Share the assumptions and boundary conditions used. Describe how the costs of the proposed system/technology, both capital and operational, compare with the current process and with other low carbon options. Where relevant distinguish between the demonstration scale and commercial scale system. The “IHA technical performance excel” will be assessed as supporting evidence. Higher scores will be achieved where the solution has a competitive cost of abatement (relative to alternative options), and the answer provides clear and robust evidence and reasonable assumptions.
- Describe how the project would lead to improved evidence on system cost and to cost reductions in the commercialised solution. A demonstration which gathers evidence

on real-world capital and operating costs will score likely provide stronger evidence than a FEED study.
Criterion 2c: Emissions, environment and safety (10%)
Guidance for criterion 2c: • Provide evidence on the expected emissions intensity of the hydrogen produced ($gCO_2e/MJ_{H2,LHV}$ at the production technology boundary), and the overall emissions abatement of the system relative to the current process (e.g. in $kgCO_2e$/unit product or % emissions reduction). Give the emissions breakdown into: primary energy/feedstock, hydrogen generation, transport and storage and hydrogen end-use. Use Green Book data tables and default data from the Data Annex to the Low Carbon Hydrogen Standard where relevant, or more bespoke assumptions with justification, and share the assumptions used. The "IHA technical performance excel" will be assessed as supporting evidence. Projects will score highly if they have a very low emissions intensity, high abatement, strong evidence provided and reasonable assumptions. Projects will score higher if they can evidence compliance with the Low Carbon Hydrogen Standard; if they cannot evidence this then projects should justify why the project provides significant value to the establishment of low carbon infrastructure and the objectives of the IHA programme. • Describe and provide evidence on the wider environmental impact and safety of your solution (e.g. air quality, NOx, methane leakage, scarce materials, water usage, waste, noise, safety regulatory requirements etc) and how any potential negative impacts can be mitigated in the demonstration and commercial deployment. Indicate any fugitive hydrogen emissions expected throughout the system and how this will be mitigated. Explain how relevant environmental impacts would be monitored/measured during the demonstration/deployment. Summarise the approach to safety during the demonstration/deployment, including roles of expert staff and safety plan approach. See **Section 2.4** and Appendix 5: Environment and safety resources. High marks will be awarded where there is strong evidence provided, the solution has minimal negative environmental impacts and the project has a robust approach to safety and monitoring.

Criterion 3: Project financing (25%)
Criterion 3a: Project cost breakdown form (10%)
Guidance for criterion 3a: Fill out and upload the Stream 2B **project cost breakdown form** (excel), including all tabs. Only costs associated and required for the demonstration/FEED can be included. Please carefully read the instructions within the excel. The eligible costs are set out in **Section 2.2** and Appendix 3: Eligible and Ineligible Costs. Please see Appendix 4: Residual Values for further guidance on calculating eligible cost and residual value of

capital items. Consider the latest predictions of energy costs, inflation and other changes in your project costing. Higher marks will be awarded where:

- the proposed costs are eligible, accurate, fair market value and realistic in terms of the proposed project plans
- the costs are necessary and sufficient to provide the deliverables sought, including covering all costs needed to execute the delivery plan in criterion 4.
- the cost items are explained, evidenced and justified, as well as sufficiently disaggregated. Subcontractors selection and costing should be justified, including why they are not partners, and costs should be sufficiently disaggregated to understand contributing components, rates etc.
- For labour 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.
- There is assurance of costs provided. For example, draft supplier agreements or budgetary quotes for large spend items can be attached in the Supporting Information document, and referenced in the project cost breakdown form.

Criterion 3b: Additionality and value for money (15%)

Guidance for criterion 3b:

- Explain how and why the availability of public funding makes a material difference to the ability of this project to progress (at all, and in the proposed timeframes), and what would happen in the absence of public funding. For FEED projects, higher marks will be awarded where applicants can provide a credible justification of how IHA funding of FEED will lead to faster and more certain demonstration/deployment. Please make clear the key uncertainties / risks around the outcome of the project that mean public funding is necessary to de-risk the project.
- Describe why the proposed project provides good value for money and fair market value for BEIS. Qualify and quantify the savings that are being passed on to HM Government to reflect the balance of risks and benefits accruing to the project consortium and HM Government. For example, through widely sharing the knowledge to support HMG goals, through ‘in kind’ contributions, or through reasonable day rates or reduced rates on subcontracts. Assessors will consider your answer and the information in the **project cost breakdown form** when evaluating value for money of the project. Higher marks will be awarded to projects where a good VFM for HM Government is demonstrated, where a large proportion of the funding is used for innovative technologies/activities, to develop new evidence and deliver against programme objectives.
- Explain where the match funding required for the demonstration/FEED will come from and confirm the level of that match funding; include supporting evidence such as a Letter of Intent in the Letters of Support attachment. Projects which are requesting lower than the eligible grant intensity % (considering all public funding) will score better on value for money. Explain whether you are reliant on any other funding sources for the 2B project to go ahead and the source and value of these;

applications will not be successful if 2B project delivery relies on other public funding sources which are not confirmed at the point of application.

- Outline whether there is a plan to further prove the long-term reliability, viability and feasibility of the solution beyond the IHA project. Explain the proposed use of any assets post-demonstration (e.g. operational deployment at industrial site, further RD&D uses) to maximise value for money. Projects will score higher if future use of assets will provide additional evidence on industrial use of hydrogen, either in long term industrial operation or in further industrial RD&D.

Criterion 4: Project delivery (30%)

Criterion 4a: Delivery plan and risk management (15%)

Guidance for criterion 4a:

Attachments should be provided covering key work packages, Gantt chart and risk register, which will be assessed. These documents, outlining the delivery plan, will be assessed on the basis of expected effectiveness and efficiency of delivery, including completeness, appropriateness and deliverability in the timeframe.

- Provide a **key work packages** document for the project. Outline and describe a project plan, listing the work packages, along with the skills and competencies required, partner(s) responsible, and timescales. Include the cost of each work package, with the total cost equalling the total project cost. For each work package/task, state and justify whether it is classed as Experimental Development or Industrial Research (see **Section 4.2**). For demonstration projects, detail the approach of the performance validation process that will be followed during the demonstration phase and provide a high-level testing plan for the project.
- Provide a separate detailed **Gantt chart** (suggested Level 3 schedule) for the project, including identifying key milestones, interdependencies and critical path items. Please start your Gannt chart on 15/05/2023, with draft 2B report and any demonstration complete by 07/02/2025 and all work finalised prior to 07/03/2025.
- Provide a detailed **project risk register** for the project, identifying key risks and grouping into appropriate categories, such as: technical, legislative/regulatory, environmental, policy, economic, commercial, financial, health & safety or project management. Include description of risk; cause of risk; risk owner; overall risk rating (probability x impact), mitigation action, and residual risk after mitigation action. Provide information on contingency planning and suitable management and mitigation strategies. Consider, and minimise, dependency on external factors beyond the project's control. In addition, provide a description of the risk management process, including how risks will be identified & rated, risk ownership, reporting and escalation.
- Provide evidence of access to any specialist facilities or materials needed to complete the project. Provide information (e.g. letters of support or draft agreements) from key

organisations and authorities (other than consortia members) to provide evidence that the delivery plan is feasible in the timeframes i.e. to complete by February 2025. For example, site/facility owners, electricity/gas DNO, planning authorities, Environment Agency and suppliers of capital items (e.g. electrolyser). Consider the impact of current supply chain disruption. Show that you have considered the appropriate planning regulations for the deployment of your demonstration and show how you aim to ensure the appropriate permissions will be obtained in line with the project schedule. For FEED studies, provide evidence that the physical project can be implemented and commissioned by end-2026.

Criterion 4b: Project team skills and capabilities (10%)

Guidance for criterion 4b:

- Provide an **organogram** outlining the involvement and roles of key organisations and individuals. Explain the nature and status of the project team/consortium arrangements.
- Provide brief **CVs of key individuals** within the project team, including partner organisations, in an attachment to this criterion as supporting information (CVs should be no longer than 2 pages each).
- Describe the relevant skills, qualifications, and experience of main project team members, including relevance to the role in the project and tasks to be undertaken. Provide details of previous relevant work / projects carried out by specific team members, including the date, location, client, project value and relevance to this proposal.
- Demonstrate the strong commitment of all participating organisations (partners). Provide letters of support from any other organisations key to the delivery. For subcontractors/suppliers delivering more than 10% of the work (by value) please provide name, organisation size, role/activities, where the work will be located and evidence of their commitment to the project (e.g. a signed letter of support); explain how you will ensure that these parts of the project do not give rise to delays in the delivery of the project.
- Explain how the project team will ensure they have sufficient capacity to deliver the project(s), in particular if involved in multiple funding applications.

Criterion 4c: Knowledge dissemination (5%)

Describe how the evidence generated by the project will be shared with industry. The information shared should include findings from the project, key technical parameters/results and documents, lessons learned during the project and any challenges faced during delivery. Provide specific details of the organisations/channels that the information will be disseminated through (e.g. meetings, webinars, events, industry publications), as well as what dissemination activities will occur when. Explain how the information disseminated will support stakeholder understanding of how to design, implement and deliver a hydrogen

solution in an industrial application. High marks will be awarded for detailed, specific and effective dissemination plans.

6.2. Scoring Guidance

We will select projects based on their assessment against the criteria outlined in **Section 6.1**. The projects will be scored using the scoring system set out below in **Table 6**.

Score	Description
1	**Not satisfactory**: There is little to no evidence that the question has been satisfactorily answered, with major omissions evident. The response does not give confidence that the project will result in a satisfactory outcome.
2	**Partially satisfactory:** The question has been satisfactorily answered in part however, notable omissions are evident and considerable clarification is needed Supporting evidence is lacking and there is uncertainty whether the project will result in a satisfactory outcome.
3	**Satisfactory:** The question has been satisfactorily addressed, with reasonable evidence provided but some omissions may be evident and further clarification may be needed. There is a reasonable expectation that the answer provided can lead to satisfactory project outcomes.
4	**Good:** The question has been well addressed with only minor omissions or lack of clarity and good evidence provided. There is a good probability that that the answer provided will lead to a strong project outcome.
5	**Excellent:** The question has been addressed clearly and concisely in all aspects with strong evidence provided. Very minor clarifications may be needed however, the answer provides confidence that a strong project outcome is likely to be achieved.

Table 6: Scoring guidance

6.3. Selection Approach

Applications will be assessed by a minimum of three assessors, which could include BEIS assessors and independent assessors[11] (technical and commercial experts). The score given to each sub-criterion (or criterion where there are no sub-criteria) will be based on the information provided in the response to that sub-criterion; however, assessors will consider the information in the context of the wider application for the purposes of clarity and consistency. Applicants should ensure all information key to each sub-criterion is included in the response

[11] All external reviewers will have signed up to adhering to strict conflicts of interest and confidentiality terms.

to that sub-criterion, and where relevant documents are attached that these are clearly referenced. A moderation meeting will be held at the end of the assessment process to agree the overall weighted scores for each of the projects. To be eligible to receive funding, a project must achieve a score of at least 2 out of 5 against each sub-criterion, with a minimum total weighted score of 60%. Therefore, an application which leaves a sub-criterion answer blank will not be eligible. BEIS may, at its discretion, request clarifications and additional information before making a final decision.

Suppliers will be ranked in order of merit. The highest-scoring proposals will be put forward for Stream 2B funding if they meet the minimum scores and eligibility for funding. BEIS will fund projects up to the Stream 2B total of £20 million, giving a minimum of 2 funded projects, provided sufficient eligible and quality applications are received.

7. Deliverables

Stream 2B will provide grant funding for demonstration/FEED projects, from hydrogen production to end-use, to prove their feasibility and provide further evidence on the real-world performance and costs. All Stream 2B projects will be expected to deliver:

- A physical demonstration of their end-to-end system (for demonstration projects)
- Interim findings reports for publication through the project lifecycle, for the purposes of knowledge dissemination e.g. final FEED document, White paper (exact content and dates to be agreed between individual projects and BEIS)
- Knowledge dissemination activities (see **Section 11** for more information)
- An evidence-based final project report for BEIS (and other government departments) detailing:
    - the design and development of the system, including front-end engineering design
    - For demonstrator projects, trial results, including performance of the solution and detailed technical data (e.g. efficiencies, % emissions reduction and gCO_2e/MJ_{LHV} H_2). For FEED projects the expected performance of the solution at full scale.
    - Costs (or expected costs for FEED) of the solution (e.g. £/MWh H_2 and levelized cost of abatement), including capital and operating costs, for the demonstration and estimates for commercial use.
    - carbon emissions savings potential and potential contributions to net zero targets
    - assessment of the benefits and challenges of the solution and process risks
    - environmental, safety and regulatory considerations and requirements
    - how the process could be scaled and replicated more widely
    - key successes and lessons learned in the project
    - how to address any risks, challenges and uncertainties associated with the proposed technology.

    - An assessment of how the process, technologies and knowledge will continue to be developed, commercialised and/or used after funding ends.
    - For FEED projects, an implementation plan of how the project will be demonstrated/deployed soon after the end of the BEIS project funding (by end 2026).
- A version of the final project report that can be published.

If there are aspects of the final project report which are commercially confidential, then project teams will be required to provide a version of the report that can be published. Omissions on the basis of commercial reasons should be discussed with BEIS at the earliest opportunity once the contract has been awarded. BEIS requires the majority of the information and findings of the project to be published.

BEIS will appoint a Monitoring Officer[12] to each project to monitor the delivery of the project deliverables and review submissions. Project teams will be required to meet with their Monitoring Officer at least monthly. For more information about the monitoring and reporting requirements for this Competition, see **Section 8**.

7.1. Stage Gates

The IHA programme will undergo a stage gate approximately every 6 months, so there will be two or three stage gate reviews for Stream 2B projects. The purpose of the stage gates is to review the technical, commercial and financial progress towards the agreed objectives for each project and they provide an opportunity for the projects to demonstrate their capability to deliver the remaining duration of the project. There are three possible outcomes of the process: ‘Continue’, ‘Rectify’ or ‘Terminate’.

The projects will share document(s) 2 weeks in advance of the meeting summarising their progress, including technical, financial, schedule, risks and issues. The reviewing panel may include, but is not limited to, the BEIS theme lead, BEIS IHA programme and project managers, IHA Monitoring Officers and independent technical experts, which may be internal to BEIS or through a BEIS contractor. Projects will be assessed considering criteria such as technical, schedule, finance, quality, resource, risks and issues.

For Stream 2B, the first stage gate is expected to occur around November 2023. The exact timing and requirements for this stage gate will be similar across projects but will be agreed between individual projects and BEIS prior to contracts being signed, based on the specific requirements of the project. The anticipated requirements for this stage gate are:

1. Detailed mobilisation and demonstration/FEED planning documents:
    a. Updated project plan and evidence that delivery plan can achieve all objectives, including being complete by February 2025
    b. Updated detailed risk register, mitigation strategies and contingency planning
    c. Benefits realisation and management plan

[12] In some instances, the monitoring services will be provided by an external organisation. External organisations will be subject to a confidentiality agreement.

2. [Demonstration projects only] FEED work to be in advanced stages or is complete
3. Formalisation of all key supply chain relationships. Heads of terms/final draft commercial contracts for key work packages and draft end-user commercial contracts if applicable (note – this is applicable for sub-contractors/suppliers only, details of project partners must be provided at application stage, with a consortium agreement completed within one month of the Grant Funding Agreement being signed)
4. [Demonstration projects only] Evidence of planning permission/certificate of lawfulness obtained for build and operation of the demonstrator (where relevant), or at minimum pre-application checks and a provisional plan for approval
5. Evidence of compliance with relevant regulations (e.g. Planning (Hazardous Substances) regulations 2015, COMAH, Gas Act 1986) and consultation with relevant authorities (e.g. Environment Agency and HSE where relevant). Evidence of reviewing and accounting for the relevant environmental and safety guidelines and that all appropriate approvals are in place for the demonstrator
6. [Demonstration projects only] Electricity supply agreement in place where needed (e.g. formal grid connection offer or direct wire) with timeframes agreed, or evidence of existing infrastructure and agreement
7. [Demonstration projects only] Hydrogen supply / equipment agreed e.g. electrolyser production slot reserved and specification and delivery timescales agreed
8. Proof of match funding e.g. bank statement, MOU or section in consortium agreement
9. Where needed, Final Investment Decision taken for full project

The stage gate will include a discussion between the project team, the monitoring officer, technical experts and BEIS representatives focussed on the progress, delivery plan and the key risks and challenges. The discussion will ascertain how well the project is progressing against the criteria, as well as whether any of the residual risks are unacceptable to BEIS and the project team, to make a joint decision on if/how to progress. Where, in the opinion of the BEIS project team, unsatisfactory progress has been made, the BEIS SRO will review the evidence and make the final decision on progressing.

Subsequent stage gates will occur at approximately 6 month intervals. The exact timing and requirements for these stage gates will be agreed between individual projects and BEIS prior to contracts being signed. It may be based on project specific milestones, such as final design or construction.

8. Monitoring and Reporting

8.1. Project Monitoring and Reporting

If successful, each project will be required to submit a completed BEIS project plan and finance form, to be signed off by BEIS prior to the start of delivery. This will provide information about the project's deliverables, milestones and invoice schedule.

This competition also has a requirement to demonstrate the benefits and key performance indicators (KPIs) that it is seeking to realise for the Industrial Hydrogen Accelerator programme

and the wider Net Zero Innovation Portfolio. Project monitoring and reporting is required to track project progress against these benefits and KPIs, as well as progress towards milestones.

Each project will be allocated a Monitoring Officer at the point of notification. In some instances, the monitoring services may be provided by an external organisation contracted by BEIS. External organisations will be subject to a confidentiality agreement. Applicants will undertake their own project management and will be overseen by their appointed Monitoring Officer. Projects are required to engage with the appointed project monitoring officer regularly and effectively throughout the duration of the project.

Regular project monitoring and reporting will take three forms:

1. Project teams will be required to meet with their Monitoring Officer once per month to update on project progress. Projects will share a slide pack covering progress, project achievements, technical challenges, spend against forecast, invoice update, risks and issues and RAG.

2. Projects will be required to submit a project progress report every quarter. We expect this report to cover, as a minimum:

   - progress against the project delivery plan and project milestones
   - upcoming work over the next quarter
   - financial information (including budget spend so far and budget forecast)
   - an updated risk register (including flagging where risk ratings have changed or new risks/issue have emerged)
   - recent highlights and outputs
   - any key lessons learnt during delivery, and progress against relevant programme benefits.

3. Projects will be required to undergo approximately two or three stage gate reviews, as per section 7.1.

Projects will also be required to share deliverables and a final project report, as per section 7.

It is important to allow for this work, as well as the milestone invoicing, when resourcing the project management and reporting element of the demonstration project.

8.2. Milestones and Invoicing

Milestone payments will only be made by BEIS after an agreement has been signed between the applicant and BEIS. Further details on payments and financial requirements will be provided by BEIS as part of any funding agreement. These will include the requirement for detailed statements of expenditure and requests for funds in a specified format. Payments will be made on a milestone basis upon receipt of a detailed statement of expenditure. They will be subject to satisfactory progress against the project’s work plan. The exact milestones and

associated payment amounts will be agreed on a project-by-project basis prior to the start of delivery.

Applicants must satisfy the due diligence, financial and organisational checks required prior to receiving public funds.

Milestone claims for Stream 2B must be invoiced in time to be processed and paid by 31st March 2025. If circumstances outside the control of the project occur which impact on delivering the expected outputs, the project must inform their Monitoring Officer as soon as possible. The Monitoring Officer will consult with BEIS to determine the best course of action.

After each stage of work is completed, you will be expected to complete and submit a claim form. Claims should be submitted to the Monitoring Officer for processing and will be paid within 30 working days of a complete and satisfactory claim being received. Finance is released against work carried out rather than a lump sum on approval.

For a milestone invoice, BEIS expects a complete invoice cover sheet (template to be provided by BEIS), a company headed invoice from the lead organisation and evidence that the milestone deliverables are complete. BEIS will only pay projects for actual costs and in arrears of work done. Projects must provide BEIS with evidence of work done and costs incurred with each invoice. Acceptable evidence of work done will be agreed with BEIS in advance. Evidence of work done and costs incurred will be checked by the Monitoring Officer for quality before the invoice can be approved and payment can be made. Typical submission requirements with an invoice are as follows but are subject to change:

- Evidence of **work done** that is being claimed for; this should be as per the agreed evidence outlined in the BEIS Project Plan and Finance Tables document that is to be completed during Contract Award stage. This should prove that the work being claimed for has been done e.g., written reports, drawings, presentations, photographs of equipment, meeting minutes, test data, etc.

- Evidence of **costs incurred**:

    - A breakdown of all costs should be given across the partners and across each cost category (labour & overheads, materials, capital, subcontract, travel & subsistence and other). This breakdown should be given for each consortium organisation (lead organisation and partner organisations).
    - Labour & Overheads claim (for lead and project partners) taking the form of a consolidated time sheet for the invoiced milestone containing each member of staff, labour cost (day rate based on annual gross salary plus employer contributions), number of days spent on project milestone, overheads, and total labour costs including overheads.
    - For materials, capital, subcontract, travel & subsistence, and other costs, an itemised list with costs must be submitted along with invoices and proof of payment for any items over £10k (excluding VAT).

8.3. Project changes and change control

BEIS recognises the importance of remaining flexible and pragmatic throughout project implementation and will consider changes to ensure the most effective use of funds. Any change that impacts the delivery of the project must be identified, documented and effectively assessed to ensure that the consequences of that change are understood as part of the decision-making process. Projects will discuss any changes (e.g. to time, budget, project team, scope etc) with their Monitoring Officer and where required will submit a change request to BEIS for approval. Requesting a significant change may necessitate a re-examination of project purpose or implementation or in some circumstances, may invalidate the GFA. An updated work plan and budget may also be needed when requesting changes.

Any significant changes that emerge through FEED work before FID (and the stage gate) will need to be reviewed and BEIS will consider material changes to ensure the project can complete by March 2025 within the scope of the original project and programme objectives.

8.4. Benefits Realisation and Management

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

Benefit/Measure	Links to KPIs
Accelerate Commercialisation	
Number and value of contracts signed	8
Amount of private funding leveraged at project close	6i
Amount of follow-on funding received	6ii
Cost Reduction of Low carbon Technologies	
Reduction in the cost of the technology	
Demonstrating UK leadership on the innovation	
Number of domestic and international collaborations	4
Number of invitations to speak at international events	
Increased Knowledge Simulating Further Innovation	
Amount of domestic and international interest in the technology	4

Number of projects sharing skills/ knowledge with companies through consultancy or human resources (staff exchange/contractors)	4
Publication of project reports	4
Amount of media/research coverage, including announcement of new projects/partnerships	4
Growth and Resilience in UK Companies	
Number of jobs supported	3
Number of new companies in the project's supply chain	3
Increase in the market potential of the innovation	5

Table 7: Benefits, measures, KPIs

The programme will be reporting against the benefits in bold listed above, using appropriate measures to provide evidence for each of these benefits. The corresponding KPIs listed relate to the portfolio-level NZIP KPIs discussed in **Section 8.5**. This Table is **for information only** and serves to outline the expected level of granularity for reporting against benefits.

Based on the benefits selected in their application form, each successful bidder will be asked to complete a Benefits Plan (see Appendix 2: Example Benefits Plan for an example) at the project kick-off meeting. Some benefits will have a quantitative measure that will be tracked using metrics that the project provides; other benefits are qualitative, the success of which could be determined by the quality of reports and other evidence produced. At this stage, projects may also identify additional measures that they will report on to demonstrate a particular benefit, although this is not a necessary requirement.

Progress against projects' benefits reporting will be monitored by the project Monitoring Officers at appropriate intervals. Projects will be required to make available any project data that is reasonably necessary for reporting against the project benefits. They will also be required to declare where they may need assistance in contributing to the project benefits.

8.5. NZIP Key Performance Indicators

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

Project lead organisations will be required to report on KPIs at various intervals for each project, including at the start of the project, during project delivery, at project closure and for three years after project closure. BEIS will supply funded projects with a reporting template to

complete at set intervals, and recipients are expected to return the template to their Monitoring Officer upon completion, who will review and quality assure it. At project start, your BEIS Monitoring Officer will provide further details about the calculation of these KPIs and assist with the initial completion and measurement.

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

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

KPI	KPI description	Metrics
KPI 1	*Number of NZIP projects supported*	• *Project start and completion.*
KPI 2	*Number of NZIP projects that have met objectives*	• *Extent to which project objectives have been met to date.* • *Change in objectives and reasons for change*
KPI 3	*Number of organisations supported to deliver the project*	• *Lead partner delivering the project: name, organisation size and number and type of jobs supported within the organisation to deliver the project.* • *Other partner organisations involved in delivering the project as named on the Contract or Grant: name, organisation size and number and type of jobs supported within the organisation(s) to deliver the project.*
KPI 4	Number of active contractual and non-contractual business relationships supported	• Number of contractual relationships: name and type of contractual relationship. • Number of informal non-contractual business relationships: name and type of non-contractual relationship. • Extent to which your organisation expanded its network of business relationships as a result of the project
KPI 5	Technology Advancement	• Technology Readiness Levels (current and anticipated). • Other technology improvement indicators: patents applied for or granted; academic, technical or non-technical publications generated and knowledge exchange events attended (such as conferences)
KPI 6i	*Initial Financial Leverage to deliver project*	• *Project funding structure: Amount in £m of BEIS, Other Public Sector and Private Funding.*
6ii	Follow-on Funding secured	• Amount of follow-on funding raised and the source (public or private).
KPI 8	Commercialisation advancement	• Commercial readiness levels (current and anticipated) • Steps towards commercialisation incl. licensing agreements, commercial partnerships, product certifications etc.; national/ international standards passed • UK and International sales secured and their value (£m)

KPI 9	CO2 emissions reductions	• Scope and scale of project impact on carbon emissions • Route to achieving carbon emissions reductions
KPI 10	Policy impact	• Whether, how, and to what effect evidence from the project has informed policy development • Whether projects have engaged in activities with industry or civil society

8.6. Evaluation requirements

Beyond these NZIP KPIs, BEIS conducts independent evaluations of many of its programmes. The funded project organisation will be required to collaborate in reasonable evaluation activities, including, but not limited to, providing programme-specific KPIs, completing questionnaires or surveys, participating in interviews and workshops, communicating the learnings from the project, providing costs/sales data and elaboration of any of the measures covered in the NZIP KPIs.

9. Financial Information

Applicants are requested to provide a fixed price quotation for the work. A detailed cost breakdown is required to enable assessment of value for money. Financial information should include costs for the project, detailing labour (including labour rates), material and capital equipment costs, and any travel and subsistence requirements. Applicants are required to complete a Project Cost Breakdown Form as part of the application process.

9.1. Financial viability checks

BEIS will carry out financial due diligence on all preferred bidder(s). This may include, but not be limited to, credit checks and the detailed scrutiny of comprehensive reports resulting from said credit checks.

BEIS may need to check with bidder(s) that the information within the report is correct. BEIS may also request the latest accounts and financial information from the preferred bidder(s).

Financial due diligence checks will include looking at the latest independently audited accounts filed on the Companies House database. BEIS reserves the right to also verify the financial viability of all project partners and key sub-contractors.

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 cashflow for the project appropriately, so the information we request will be focused on understanding how your business operates in this respect.

The outcome of BEIS financial due diligence may result in preferred bidder(s) not being awarded a Contract.

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.

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

10. Notifications and Publication of Results

10.1. Notification

Applicants will be informed by email whether their application has been successful.

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

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.

10.2. Publication of Results

In return for the provision of funding, BEIS expects to be able to use and share the results and outputs of the activities with other government departments.

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

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

Following completion of the funded projects, BEIS will publish on its website a summary of the funded activities and the outcomes achieved. This will include a final project report from each project detailing technical approach and key achievements. BEIS may also revisit projects at a later date and publish an evaluation report for the scheme as a whole.

BEIS, however, recognises the need to maintain confidentiality of commercially sensitive information. We will consult applicants regarding the nature of information to be published, to protect commercially sensitive information. BEIS will further report the outcome of the Stream

2B Competition on the UK's Subsidy Database,[13] in line with the UK Subsidy Control guidance.

11. Knowledge Dissemination Requirements

Effective dissemination and knowledge sharing are key requirements of the IHA competition, and applicants will be assessed on the scope and scale of their proposed knowledge dissemination and sharing activities.

Stream 2B projects will be required to contribute to a minimum of three knowledge dissemination activities, including to a range of BEIS and industrial stakeholders. Projects will be expected to contribute to sector capacity-building, engaging significantly with industry conferences or trade shows, as well as engaging in wider knowledge dissemination activities.

The specific knowledge dissemination activities to be delivered are at the discretion of the project and will be agreed at project award.

Projects will be required to produce evaluation reports of their knowledge dissemination activities, detailing their activities & lessons learnt. The Monitoring Officer assigned by BEIS will monitor the knowledge dissemination of project teams.

Projects must agree to publish non-confidential project outcomes. This must include a comprehensive final project report, as well as other outputs and provisional findings throughout the project lifecycle, to enable knowledge dissemination. Specific outputs and timings will be agreed with projects before the GFA is signed.

12. Intellectual Property Requirements

The proposed arrangements for intellectual property rights (IPR) and exploitation of IPR are set out in the Grant Funding Agreement for this competition, in **Annex 1A**.

Subject to the requirements of section 16 of the standard Grant Funding Agreement (**Annex 1A**), applicants will retain ownership of the intellectual property generated from the project. In accordance with the terms set out in this agreement, the Grant Recipient will be required to grant BEIS a non-exclusive irrevocable and royalty-free, sub-licensable, worldwide licence to use all the IPR Material for the purpose of supporting the Funded Activities and any other related non-commercial project.

[13] https://searchforuksubsidies.beis.gov.uk/

13. Feedback, Re-application and Right of Appeal

A short summary of key feedback regarding the application will be provided to all applicants. This feedback will be based on the comments of technical assessors. The Industrial Hydrogen Accelerator programme team will provide comments where an applicant is considered ineligible in light of financial viability checks, or other eligibility criteria. No additional feedback will be provided and there will be no further discussion on the application.

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

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

14. Confidentiality and Freedom of Information

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

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

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

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

By submitting a bid, you agree that your participation in this procurement may be made public. Aside from the public description of your project (see above), the answers you give in this response will not be published on the transparency web site (but may fall to be disclosed under FOIA or EIR (see above)). Where bid documents issued by the Department or contracts with its suppliers fall to be disclosed the Department will redact them as it thinks necessary, having regard (inter alia) to the exemptions/exceptions in the FOIA or EIR.

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

15. Terms and Conditions

The Department's Standard Grant Funding Agreement as amended for the purposes of this competition will apply to this competition (see **Annex 1A**).

16. Completion of the Application Form

This section aims to guide you through the completion of the online Application Form for Stream 2B of the IHA competition. 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 competition can be asked during the Q&A window, 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 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 word limits and when the text has reached the word limit you will not be able to add any further information and the text must be edited to fit within the word limit. CVs have a 2-page limit per individual; if individual CVs are longer than 2 pages assessors will not read beyond the second page.

All application documents must be submitted via the online application form. In the form there are opportunities to upload relevant supporting documents. In some sections, we specify the supporting information we would like to see uploaded. Uploaded documents cannot be in place of answers being provided in the Application Form itself. The application will be assessed on the answers in the survey fields and the specific attachments requested (where relevant). Uploaded documents should not be used as a way of circumventing the word limits for each section. If there is any reason to believe that this has occurred, the uploaded document will not be assessed. Any graphs, diagrams or supporting evidence that you are providing to support your application should be uploaded to your submission.

16.1. Proposal Summary, Contact & Organisation Details

The following table explains some of the key information you will be asked to provide within your application.

Section/Field	**Guidance**
Name of applicant organisation	Provide the name of the lead applicant
Project name	A brief title that can be used to summarise the project
Estimated start date	Select the date you would propose to start work on your project assuming successful funding
Project duration	Enter the expected duration of your project in months.
Estimated end date	Select the date you propose to finish the project, considering that the Stream 2B draft final report must be completed and sent to BEIS for approval by Friday 7th February 2025 and all project work related to the demonstrator, including the final approved BEIS report, must be completed by Friday 7th March 2025.
Total Project Costs	This figure should match the figure calculated in the Project Cost Breakdown Form. It should be the total value of all eligible costs.
Total Match Funding 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.
Total 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.
Grant funding requested as a percentage of total funding (grant intensity)	Input percentage calculated in the Project Cost Breakdown Form. This figure must be compliant with the relevant subsidy control rules (see section 4.2).
Project summary	This should be a summary description of the project which should set the scene for the assessors and introduce your proposed project. You should use language that can be understood by people without specialist knowledge or expertise.

	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.
Primary Contact Details	Name and details of the person who will be the main point of contact for the application process
Email	Email address of the person who will be the main point of contact for the application process
Registered Address	This is the address where the organisation is registered
County	The county where the organisation is registered
UK Region	The UK region where the organisation is registered
Country	The country where the organisation is registered
Project Location	The location, if it is different from the registered address, where the main activity of the proposed project will be carried out
Organisation Type	Please select from the drop-down menu
Organisation Size	Please select your organisation size
Number of employees (including directors)	Number of staff in your organisation (this will help us confirm the nature of your company)
Organisation Registration Number	Your business registration number as listed by Companies House, or equivalent.
Turnover (in most recent annual accounts)	Please provide your most recent turnover figure from annual accounts and the date of those accounts. Please include currency of the amount in your response.
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. Please include currency of the amount in your response.
VAT recoverable	Please enter whether your organisation is able to recover VAT on project costs. No VAT will be added to BEIS invoices.
Organisation maturity	Please enter the age of the business since its formal formation, this includes any periods of dormancy with Companies House.
How is the organisation currently funded?	Please select all the types of funding that are applicable.
Organisation Status	This should be a summary description of your company which should set the scene for the assessors and introduce your company. You should use language that can be understood by people without specialist knowledge or expertise.

Does the business have a parent company?	We need to understand if there are any significant shareholders in your business. The parent company details should be provided in the Parent Company details section. Please see **Section 4.2** for definitions of a parent company.
Parent Company Details	If you have a parent company you must provide the details of that enterprise here.
Is this a collaborative application?	If you are applying collaboratively, please provide details of the partner organisations in the Partner Information Form and upload it to your application.

17. Further Instructions to Bidders

The Department reserves the right to amend the enclosed competition documents at any time prior to the publication of supplier questions and answers **(Friday 13 January 2023).** Any changes are most likely to adjust editorial errors and include FAQs from questions asked from stakeholders/applicants before **14:00 GMT 5 January 2023.** Any such amendment will be numbered, dated and issued on the IHA website. Where amendments are significant, the Department may, at its discretion, extend the deadline for receipt of bids.

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

17.1. Definitions

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

17.2. Data Protection and Security

The successful bidder must comply with all relevant Data Protection Legislation, as defined in the terms and conditions applying to this Grant Competition. A guide to the UK General Data Protection Regulation published by the Information Commissioner's Office, can be found here.

Annex 2A contains a “The General Data Protection Regulation Assurance Questionnaire for Contractors” (Declaration 7) to evidence the extent of readiness. The Authority may ask the Contractor to provide evidence to support the position stated in the questionnaire. The Authority may require the successful Contractor to increase their preparedness where the Authority is not satisfied that the Contractor will be in a position to meet its obligations under the terms and conditions. If the Contractor fails to satisfy the Authority that it will be in a position to meet its obligations under the terms and conditions in the event that the Contractor is successful, the Authority reserves the right to exclude the bidder from this procurement.

17.3. Non-Collusion

No bid will be considered for acceptance if the contractor has indulged or attempted to indulge in any corrupt practice or canvassed the bid with an officer of the Department. Annex 2A contains a "Statement of non-collusion" (Declaration 1); any breach of the undertakings covered under items 1 - 3 inclusive will invalidate your bid. If a contractor has indulged or attempted to indulge in such practices and the bid is accepted, then grounds shall exist for the Authority to terminate the contract and claim damages from the successful bidders. You must not:

- Tell anyone else what your bid price is or will be, before the time limit for delivery of bids.
- Try to obtain any information about anyone else's bid or proposed bid before the time limit for delivery of bids.
- Make any arrangements with another organisation about whether or not they should bid, or about their or your bid price.

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

18. Appendix 1: Technology Readiness Levels

Technology readiness levels are an indication of the maturity stage of development of a technology on its way to being developed for an application or product. The **Table 8** below defines TRLs 1 to 9.

Table 8 Technology Readiness Levels

TRL 1 – Basic Research	Scientific research begins to be translated into applied research and development.
TRL 2 – Applied Research	Basic physical principles are observed, practical applications of those characteristics can be 'invented' or identified. At this level, the application is still speculative: there is not experimental proof or detailed analysis to support the conjecture.
Applied research and development	
TRL 3 – Critical Function or Proof of Concept Established	Active research and development is initiated. This includes analytical and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
TRL 4 – Laboratory Testing/Validation of Component(s)/Process(es)	Basic technological components are integrated to establish that the pieces will work together.
TRL 5 – Laboratory Testing of Integrated/Semi-Integrated System	The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment.
Demonstration	
TRL 6 – Prototype System Verified	Representative model or prototype system is tested in a relevant environment.
TRL 7 – Integrated Pilot System Demonstrated	Prototype near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment.
Pre-commercial deployment	
TRL 8 – System Incorporated in Commercial Design	Technology is proven to work - actual technology completed and qualified through test and demonstration.
TRL 9 – System Proven and Ready for Full Commercial Deployment	Actual application of technology is in its final form - technology proven through successful operations.

19. Appendix 2: Example Benefits Plan

Benefits	Benefit Description	Measure
Accelerate Commercialisation	Demonstrate potential for commercial viability of end-to-end hydrogen industrial fuel switching systems	Number and value of contracts signed
		Amount of private funding leveraged at project close
		Amount of follow on funding received for the same or related projects during or after this project
		Amount of further R+D capital committed to the innovation (projects own capital)
		Successful demonstration of the end-to-end system (and plan for commercial implementation)
		Technology Readiness Level progression
		Forecasts for sales, revenue and export potential of demonstrated technologies
	Increase the commercial readiness of the end-to-end product	Commercial Readiness Level progression
		Number of national standards passed
		Number of patent applications the project has resulted in
Increased knowledge stimulating innovation	Provide evidence & knowledge to support hydrogen and industrial decarbonisation policy	Successful completion and publication of project reports providing evidence on costs and performance of system and technologies
		Impact of the project on local or national policy
	Increased awareness, understanding and confidence in end-to-end hydrogen fuel switching solutions for industry to facilitate future deployment	Amount of domestic interest in the technology
		Number of events for the purpose of sharing/exchanging knowledge (co-) produced as a result of the project
		Number of other knowledge exchange or dissemination products or activities generated as a result of this project e.g. digital and printed media (leaflets, videos, etc.), and social networks (e.g. LinkedIn, Twitter, company websites).
		Number of organisations which visit demonstration site
		Feedback from key stakeholders attending the demonstration site, reading project report or listening to project presentation
		Amount of media/research coverage
		Number of project reports/documents published
	Knowledge spillovers to other applications	Number of partnership/projects planned in other sectors/applications which apply the innovation from the project
		Number of academic publications generated as a result of the project
		Number of non-academic technical publications generated as a result of the project
Growth and resilience in UK companies	Strengthen supply chains & skills for industrial fuel switching around the UK	Number of jobs created and retained
		Business relationships or collaborations supported to deliver/undertake the project (excluding consortium partners named on grant/contract)
		Amount of follow on funding received
Reduction in carbon emissions	Reduction in carbon emissions of a specific industrial process	Carbon intensity of process before and after innovation is applied
		Potential volume of CO2 saved (kT CO2e/yr) for this particular site
		Potential volume of CO2 saved (kT CO2e/yr) if this innovation was deployed across all UK sites that use this process

		Potential scale of the effect of the project on reducing CO2e emissions by 2037
Increased flexibility of supply	Development of more efficient, resilient and available H2 storage solution to support UK energy system	Potential scale of the effect of the project on increasing energy system flexibility by 2037
		Ability of the system to ramp up and down and/or accommodate variable renewables
		System availability (ability of the H2 system to run 24/7)
		Efficiency of the H2 storage system
Demonstrating UK leadership on the innovation	Emphasise UK's position and reputation as a world leader in low-carbon energy	Amount of domestic and international interest in the technology e.g. Number of site visits by international delegations
		Amount of media coverage in media with international audience
		Number of invitations to speak at international events e.g. International Energy Agency (IEA e.g. TCP), Mission Innovation
		Number of international collaborations and/or projects
Cost reduction of technologies	Quantified costs for the implementation of the technology	Reduction in levelised cost of the hydrogen generation from application stage to project closure (if applicable)
		Reduction in cost of the hydrogen storage/transmission from application stage to project closure (if applicable)
		Reduction in cost of the hydrogen end-use from application stage to project closure (if applicable)
Reduction in energy consumption	Innovation leading to reduced energy consumption	Potential scale of the effect of the project on reducing energy demand by 2037
		% reduction in energy consumption for this particular site/process

20. Appendix 3: Eligible and Ineligible Costs

Applicants must complete the Stream 2B Project Cost Breakdown Form to provide the necessary cost information for the assessment process; further itemisation of costs and methods of calculation may be requested to support the application. The project costs quoted must reflect actual costs at a 'fair market value' and for this competition.

Timing: BEIS will only provide the funding to cover eligible costs incurred and defrayed in the period between the project start date specified in the Grant Funding Agreement, and the deadline specified in the Grant Funding Agreement for completion of the project.

Who can incur eligible costs: The definition of eligible costs includes the applicant's own costs, eligible costs incurred by consortium members and eligible costs incurred by companies sub-contracted to the applicant or consortium members as defined in the application or subsequent agreements between the successful applicant and BEIS.

Non-sterling costs: Costs must be denominated in GB pounds. If relevant, applicants should indicate where conversion has been made to GB pounds from other currencies and indicate the conversion rate and assumptions used.

Decommissioning costs: Projects will have responsibility for decommissioning demonstration equipment/assets when the project has been completed if it is not feasible to continue to operate/develop the equipment. When applying, applicants need to include any decommissioning costs, at fair market value, in the total estimated costs for the demonstration project.

Sub-contract use: You will be expected to state and justify in your project application the amount of sub-contract funding (if any) within the expected spend of the project. You will be expected to explain the necessity for this spend as opposed to the addition of collaboration partners within the project proposal.

Overhead Rates: Overheads are additional indirectly incurred costs that are necessarily incurred by the applicant in undertaking the work. BEIS normally calculate overheads as a fixed percentage of all direct labour costs at 20% but will consider overhead rates in excess of 20% where a strong justification has been provided. The overhead rate is agreed with BEIS before the Grant Offer Letter is issued and cannot be changed during the work.

Staff Costs: BEIS would not normally expect to see contractors in key posts, e.g. CEO, FD, etc included in applications. Exceptionally, where BEIS is willing to provide a grant which covers the cost of staff in key posts, the day rate attributed to each member of key staff within the project must be agreed with BEIS at the outset and cannot be varied without written agreement.

Eligible Costs

Eligible costs are defined as the following:

- Personnel costs: researchers, technicians and other supporting staff to the extent employed on the project.

- Costs of instruments and capital 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. Please see Appendix 4: Residual Values for further guidance on calculating residual value.

- Costs 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.

- Costs of contractual research as well as costs of consultancy and equivalent services used exclusively for the project; and,

- Additional overheads and other operating expenses, including insurance costs for demonstration projects, costs of materials, supplies and similar products, incurred directly as a result of the project.

Ineligible Costs

Under no circumstances can costs for the following items be claimed:

- Contributions in kind
- Interest payments or service charge payments for finance leases
- Gifts
- Statutory fines, criminal fines or penalties civil penalties, damages or any associated legal costs
- Payments for works or activities which the grant recipient, or any member of their Partnership, has a statutory duty to undertake, or that are fully funded by other sources
- Bad debts to related parties
- Payments for unfair dismissal or other compensation
- Depreciation, amortisation or impairment of assets owned by the Grant Recipient (other than those Assets that are used for delivery of the Funded Activity)
- The acquisition or improvement of Assets by the Grant Recipient (unless the Grant is explicitly for capital use – this will be stipulated in the Grant Offer Letter)

- Liabilities incurred before the commencement of the Grant Funding Agreement unless agreed in writing by the Authority
- Costs associated with securing intellectual property arising from or associated with this project.

21. Appendix 4: Residual Values

Capital equipment costs are eligible for funding, but only those which are essential for the demonstration. The eligible capital cost excludes the value of assets at the end of the demonstration (i.e. the residual value). Applicants are asked to include in the **Project cost breakdown form** the capital costs at purchase and the residual value of the capital items at the end of the demonstration. The eligible cost is the difference between the purchase capital cost and residual value (for items which are used solely for the funded activities during the funding duration i.e. 100% utilisation):

Eligible capital cost = Purchase cost – residual value at end of demonstration

This section provides basic guidance on our expectations around residual value.

Asset Classes

For the purposes of this competition we can divide capital assets into three classes, which can be treated differently:

1. **Mature assets:** Fully mature with functioning market (e.g. solar farm). The eligible cost is only the depreciation costs for the duration of the project i.e. excluding the residual value at the end of the demonstration. The residual value should be calculated using standard accounting practices for depreciation, such as the reducing balance or straight line depreciation methods, with the key assumptions and the lifetime of the asset clearly stated and justified.
2. **Developing assets:** Assets without a mature market but with a potentially significant residual value. These may have a market developing (and therefore resale value), or may have a value in their continued use on the site of the demonstrator (value in use). For example, a mid-high TRL electrolyser which is not significantly bespoke. A fair residual value for such assets should be calculated using the principles in this Appendix.
3. **Fully bespoke R&D assets** which only have value for the duration of the innovation project and have no residual value afterwards. An example of this asset class is a bespoke burner system designed to trial hydrogen at pilot scale for a specific application, but which cannot be used for commercial operation. The eligible cost of these assets is 100% less the scrap value (funded at the appropriate grant intensity).

Developing assets

With regards to the '**Developing assets'** above, if standard depreciation is not considered a fair and appropriate method, applicants could alternatively consider the:

A. **Resale value** – value which could be achieved in selling the asset to another party at the end of the demonstration.
B. **Value in Use** – the value of the asset for the current site or owner, for example through revenue generation in commercial operation.
C. **Scrap value** – for example the salvage value of the equipment when it is disposed of as scrap material/components after its useful life.

For these developing assets, applicants should use the highest of the above three values as the residual value, except where continued use in the proposed industrial application is planned. **If you plan to use the asset for the duration of its lifetime (>3 years) in the proposed industrial application or for the proposed end-to-end research**, providing further evidence on hydrogen fuel switching, the scrap value can be used as the residual value. The applicant must provide evidence that the asset is being used for the agreed purpose and time period, including after the end of the demonstration funding period.

Examples

For an applicant considering selling the hydrogen after the funding period ends: the applicant could consider using standard depreciation on the asset, or could consider the value of the asset based on its estimated revenue generating ability through the remaining lifetime (e.g. using the expected market price of hydrogen).

For an applicant considering selling the hydrogen generation asset after the funding period ends: the residual value would be the resale value minus any costs of selling. The resale value is uncertain due to the emerging market and will depend on the technology, scale and condition. The value could be estimated based on:

- discussions with technology suppliers or potential purchasers
- standard accounting practices for depreciation
- the expected value of the asset in another application e.g. transport application under the RTFO (Renewable Transport Fuel Obligation).

The applicants would be expected to clearly and robustly justify the assumptions based on the particular circumstances of the project.

Application, assessment and delivery

Applicants are expected to select a reasonable approach for their assets and project and justify this in the application and **Project cost breakdown form**. The BEIS and external assessors will use their expert knowledge to determine if the residual value provided is appropriate. If the residual value provided is deemed too low, the project is likely to score lower on value for money. BEIS may request clarification on residual values during the assessment period.

At the end of the demonstrator, prior to project sign off, BEIS will review the residual value of the largest assets and if there is a material change in the residual value (e.g. due to market conditions or the outcome of the demonstrator), this may be adjusted and the final invoice amended (up to the maximum project grant limit agreed). For example, if a sale price has been agreed for an asset that is greater than the anticipated residual value, this will be reflected.

Applicants are reminded that BEIS reserves the right to review the status of the project and assets 2 years after the end of the demonstrator to ensure the agreed funding, residual value and asset use remains valid and as agreed. If there is found to be a material change in the agreement or value, BEIS reserves the right to claw back any grant overpaid.

22. Appendix 5: Environment and safety resources

BEIS strongly encourages applicants to begin to consider the possible environmental impacts of proposed projects as early as possible, to ensure that sufficient detail can be provided at application stage. This consideration is needed at every stage of technology development to ensure that the risks to the environment and human health are adequately understood. Applicants should seek to design out and minimise environmental risks and maximise wider environmental co-benefits. There are three environmental principles that summarise how applicants should approach this:

1. **Consider environmental risks early and comprehensively,** including providing robust evidence and management, considering the impact of deployment at scale, and engaging the public so they understand the risks and benefits. Impacts should be assessed cradle-to-grave, including harvesting feedstocks & raw materials, decommissioning, and safe long-term recovery or disposal of waste.
2. **Minimise the impacts and risks to people and our environment** – air, land and water. This includes: maximising greenhouse gas reduction, maximising resource, energy and water efficiency and maximising co-benefits for people and the environment.
3. **Ensure technologies are fit for the future**, including resilience to the impacts of climate change.

Further suggestions for how projects can prevent or minimise their emissions and impacts on the environment is available through the EA's Best Available Techniques guidance.

Please read and follow the regulatory guidance relevant to your technologies, some of which are listed below. Please note that relevant authorities may charge for detailed pre-application and permitting advice. The scope and costs associated with this service will be discussed and agreed prior to providing detailed regulatory advice. Further details of the Environment Agency pre-application advice service here.

Examples of guidance for specific Environment Agency regulations of relevance

Examples of guidance for specific Environment Agency regulation of relevance		
	Planning Permission	• Environmental advice on planning proposals
	Getting an environmental permit	• Check if you need an environmental permit • Check if your proposal meets our research & development criteria • Risk assessments for specific activities: environmental permits
	Control of Major Accident Hazards Regulations	• COMAH
Air	Carbon Capture and Storage	• Carbon Capture and Storage Best Available Techniques • Environmental Risk Assessment for Carbon Capture and Storage
	Hydrogen Production and Use	• Inorganic chemicals sector: additional guidance • Guidance in development for hydrogen production from methane/RFG with CCS is available on request. • We are in the process of developing other guidance to support hydrogen production and use. Please refer to Technical guidance for regulated industry sectors: environmental permitting for our latest publications.
	Gasification	• Gasification, liquefaction and refining installations: guidance
	Anaerobic digestion	• Regulation | Anaerobic Digestion (biogas-info.co.uk)
	Emissions to air	• Air quality in planning • Emissions Trading Scheme
Land	Waste management *(Think very carefully about potential waste status of each output and check guidance)*	• Check if your material is waste • Get an opinion from the definition of waste service • New waste management techniques • Waste and environmental impact • Register or renew waste exemptions • Incineration of waste (EPR5.01): guidance
Water	Water abstraction	• Fresh Water - Apply for a water abstraction or impoundment licence • Seawater - Do I need a marine licence Engage with Marine Maritime Organisation
	Effluent to water	• To Fresh Water and Sea water - engage with EA if novel, otherwise enhanced pre-application for Discharges to surface water and groundwater permit
	Farming	• Farming rules for water • Storing silage, slurry and agricultural fuel oil

If you have any further technology or regime specific queries then contact:

- In England, Ross Lowrie, Senior Advisor (Decarbonisation & Net Zero), at ross.lowrie@environment-agency.gov.uk
- In Scotland, please contact SEPA: ppc@sepa.org.uk
- In Wales, please contact NRW: enquiries@naturalresourceswales.gov.uk
- In Northern Ireland, please contact NIEA: IPRI@daera-ni.gov.uk

Safety Approach Guidance

Applicants to the IHA demonstration streams 1 and 2B are required to detail their safety approach as laid out below **in the early stages of the demonstration**. A high-level summary should be provided in the application form in question 2c.

- General approach to safety including roles and responsibilities of named senior management. The approach to the hiring of appropriately skilled staff at all levels from chartered engineer to craft for system design, installation, and operation. In particular, the employment or hiring of senior staff with chemical engineering or gas engineering degrees or equivalent with experience of hydrogen.
- Development of process flow diagram and energy and mass balance during start up, continuous operation and shutdown with special reference to choice of appropriate pressure tiers and minimising hydrogen inventory whilst still meeting project objectives.
- A plan for compliance with any site wide requirements set by, for example, COMAH for a large industrial plant.
- Purchase of UKCA compliant Gas Appliance Regulation, Pressure Equipment Directive and ATEX approved equipment and compliance with any other regulations as required.
- Demonstration that any existing natural gas equipment to be repurposed to hydrogen is fit for purpose and confirmed as suitable for use with hydrogen.
- If hydrogen is to be transferred from site to site by pipeline, the involvement of an appropriately experienced gas network operator.
- If hydrogen is to be moved using tube trailers an understanding of the complexity of this legislation.

Applicants are not expected to submit extensive high-level corporate health and safety documentation, but are to provide (in the early stages of delivery) documentation which can clearly be seen to have been developed for this hydrogen project, with named individuals and support organisations, that have a track record in hydrogen technology.

23. Appendix 6: Exclusion Grounds

23.1. Mandatory Exclusion Grounds

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

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

Participation in a criminal organisation

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

Conspiracy within the meaning of

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

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

Corruption

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

The common law offence of bribery;

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

Fraud

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

- the common law offence of cheating the Revenue;
- the common law offence of conspiracy to defraud;
- fraud or theft within the meaning of the Theft Act 1968, the Theft Act (Northern Ireland) 1969, the Theft Act 1978 or the Theft (Northern Ireland) Order 1978;
- fraudulent trading within the meaning of section 458 of the Companies Act 1985, article 451 of the Companies (Northern Ireland) Order 1986 or section 993 of the Companies Act 2006;
- fraudulent evasion within the meaning of section 170 of the Customs and Excise Management Act 1979 or section 72 of the Value Added Tax Act 1994;

- an offence in connection with taxation in the European Union within the meaning of section 71 of the Criminal Justice Act 1993;
- destroying, defacing or concealing of documents or procuring the execution of a valuable security within the meaning of section 20 of the Theft Act 1968 or section 19 of the Theft Act (Northern Ireland) 1969;
- fraud within the meaning of section 2, 3 or 4 of the Fraud Act 2006;
- the possession of articles for use in frauds within the meaning of section 6 of the Fraud Act 2006, or the making, adapting, supplying or offering to supply articles for use in frauds within the meaning of section 7 of that Act;

Terrorist offences or offences linked to terrorist activities

Any offence:

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

Money laundering or terrorist financing

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

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

Child labour and other forms of trafficking human beings

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

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

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

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

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

Non-payment of tax and social security contributions

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

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

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

Other offences

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

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

23.2. Discretionary Exclusions

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

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

Where the organisation or any of its Directors or Executive Officers has been in receipt of enforcement/remedial orders in relation to the Health and Safety Executive (or equivalent body) in the last 3 years.

In the last three years, where the organisation has had a complaint upheld following an investigation by the Equality and Human Rights Commission or its predecessors (or a comparable body in any jurisdiction other than the UK), on grounds of alleged unlawful discrimination.

In the last three years, where any finding of unlawful discrimination has been made against the organisation by an Employment Tribunal, an Employment Appeal Tribunal or any other court (or incomparable proceedings in any jurisdiction other than the UK).

Where the organisation has been in breach of section 15 of the Immigration, Asylum, and Nationality Act 2006;

Where the organisation has a conviction under section 21 of the Immigration, Asylum, and Nationality Act 2006;

Where the organisation has been in breach of the National Minimum Wage Act 1998.

Bankruptcy, insolvency

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

Grave professional misconduct

Guilty of grave professional misconduct

Distortion of competition

Entered into agreements with other economic operators aimed at distorting competition

Conflict of interest

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

Been involved in the preparation of the procurement procedure

Prior performance issues

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

Misrepresentation and undue influence

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

23.3. Additional exclusion grounds

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

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

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

- ILO Convention 87 on Freedom of Association and the Protection of the Right to Organise;
- ILO Convention 98 on the Right to Organise and Collective Bargaining;
- ILO Convention 29 on Forced Labour;
- ILO Convention 105 on the Abolition of Forced Labour;
- ILO Convention 138 on Minimum Age;
- ILO Convention 111 on Discrimination (Employment and Occupation);
- ILO Convention 100 on Equal Remuneration;
- ILO Convention 182 on Worst Forms of Child Labour;
- Vienna Convention for the protection of the Ozone Layer and its Montreal Protocol on substances that deplete the Ozone Layer;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention);

- Stockholm Convention on Persistent Organic Pollutants (Stockholm POPs Convention)
- Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (UNEP/FAO) (The PIC Convention) Rotterdam, 10 September 1998, and its 3 regional Protocols.

Consequences of misrepresentation

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

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

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

This publication is available from: www.gov.uk/government/publications/industrial-hydrogen-accelerator-programme