



Department for
Energy Security
& Net Zero

Second Hydrogen Allocation Round (HAR2)

Application Guidance Document



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List of Acronyms

Acronym	Definition
AACE	Association for the Advancement of Cost Engineering
BaFO	Best and Final Offer
CAPEX	Capital Expenditure
CB	Carbon Budget
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Usage and Storage
CfD	Contract for Difference
COD	Commercial Operation Date
DESNZ	Department for Energy Security and Net Zero
DNO	Distribution Network Operator
EoI	Expression of Interest
FEED	Front End Engineering Design
FID	Final Investment Decision
GB	Great Britain
GHG	Greenhouse Gas
GW	Gigawatt
HEC	Hydrogen Emissions Calculator
HMG	His Majesty's Government
HMT	His Majesty's Treasury
HoTs	Heads of Terms
HPBM	Hydrogen Production Business Model
IETF	Industrial Energy Transformation Fund

IPA	Infrastructure and Projects Authority
LCCC	Low Carbon Contracts Company
LCHA	Low Carbon Hydrogen Agreement
LCHS	Low Carbon Hydrogen Standard
MW	Megawatt
MWh	Megawatt hour
MW H ₂ HHV	Megawatts hydrogen in terms of higher heating value
NZHF	Net Zero Hydrogen Fund
OFGEM	Office of Gas and Electricity Markets
OPEX	Operational Expenditure
PPA	Power Purchase Agreement
RFI	Request for Information
RO	Renewables Obligation
RTFO	Renewable Transport Fuel Obligation
T&S	Transport and Storage
TRL	Technology Readiness Level
UKGI	United Kingdom Government Investments
VfM	Value for Money

Definitions

Term	Definition
Applicant	The legal entity that intends to apply for support and will be taken through to the agreeing the offer stage if successful (see also Project Representative).
CO ₂ e	Carbon Dioxide equivalent. The amount of carbon dioxide emission that would cause the same radiative forcing, over a given time horizon, as an emitted amount of greenhouse gases (GHG). As calculated using global warming potential (GWP) values for a 100 year time horizon, relevant to reporting under United Nations Framework Convention on Climate Change (UNFCCC), published by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Report (AR5).
Commercial Operation Date	The date the Project is confirmed to meet the relevant Operational Conditions Precedent (OCP) and the Project begins operating and is capable of producing hydrogen that will be sold to offtaker(s).
Cost of Connection	The costs incurred by the Hydrogen Project to connect to each feedstock (e.g. electricity and water).
Electrolytic hydrogen production	Production of hydrogen via water electrolysis, where water is split into hydrogen and oxygen using electricity.
Gasification/Pyrolysis of Biomass/Wastes	Refers to the thermochemical decomposition of solid or liquid biomass or waste feedstocks in the presence of limited or no oxygen.
Gas Splitting Producing Solid Carbon	Refers to the heating or ionisation of fossil/biogenic hydrocarbon gases, to generate hydrogen and solid carbon.
Hydrogen Production	Low carbon hydrogen volumes produced by the Hydrogen Project.
Hydrogen Project	Project to develop, construct, commission, and operate a new build low carbon hydrogen production project and where applicable, any associated hydrogen infrastructure that is expected to be supported through revenue support.

Mitigation	Mitigation refers to actions taken to reduce the overall risk either pre or post-event.
New Build Production Facilities	Newly constructed facility built for the specific purpose of producing hydrogen. This comprises the entirety of the production process.
Non-qualifying offtaker	Volumes of hydrogen sold to non-qualifying offtaker not eligible for revenue support via the HPBM. This includes volumes intended for: <ul style="list-style-type: none"> • Export • Hydrogen blending into the gas distribution and/or transmission network • Risk-taking intermediaries
Offtaker	In the context of the HAR2 application process, an offtaker is both the end user of low carbon hydrogen and, where relevant, any intermediary party who may purchases hydrogen for resale. Where end users do not purchase hydrogen directly from producers and there is an intermediary party, information and evidence of both end users and the intermediary need to be included in the Project Application Form and templates. Reference should be made to qualifying and non-qualifying volumes.
Operational Conditions Precedent	The Operational Conditions Precedent (OCPs) are a set of requirements a hydrogen producer must demonstrate to the Low Carbon Hydrogen Agreement (LCHA) Counterparty to prove that they have commissioned their facility and are ready for commercial operations. The OCP requirements are outlined in the LCHA Standard terms and conditions.
Operating Model	In the context of the portfolio factor application process, the term operating model is used to describe a hydrogen project's power supply arrangements. For example, a distinction in operating model would be between projects combining intermittent hydrogen production with constant power supply, or intermittent hydrogen production with intermittent power supply.
Project Representative	Legal entity responsible for submitting the Expression of Interest form and the final submission on behalf of the applicant. The Project Representative is expected to be from the primary, or partner, organisation responsible for project development (see also Applicant).

Qualifying Offtaker	An offtaker receiving volumes of hydrogen that are potentially eligible for HPBM support. Refer to non-qualifying offtaker for volumes not eligible for revenue support under the HPBM.
Risk Taking Intermediaries	For the purpose of determining eligibility, a risk-taking intermediary is defined as an entity which purchases hydrogen for the purpose of resale.

Please note the definitions set out above are intended to be for the purpose of reference in this document and should not be taken to represent any definitions in the LCHA.

Units

Where possible please use units of measurement defined by the International System of Units (SI) within your answers. For example:

- Electrical energy and Power: MWh and MW.
- Thermal energy and Power: MWh and MW.
- Gas energy and power: MWh and MW – Where used, please state whether this is given on a High Heating Value (HHV) or Low Heating Value (LHV) basis.
- Gas calorific value: MJ/kg – Where used, please state whether this is given on a HHV or LHV basis.

Section 1: Introduction and Key Information

1.1 Background and Introduction

The UK has set a world-leading net zero target for 2050, the first major economy to do so, and confirmed that hydrogen will play a vital role in delivering on this commitment. In November 2020, government published the Prime Minister's Ten Point Plan for a Green Industrial Revolution¹ with ambitions focused on driving innovation, boosting export opportunities, and generating green jobs and growth across the country to level up regions of the UK. The Plan announced that, working alongside industry partners, the UK would aim to develop 5GW of low carbon hydrogen production capacity by 2030, and set out a range of measures to support this, including the Hydrogen Production Business Model (HPBM) a contractual business model for hydrogen producers to incentivise the production and use of low carbon hydrogen through the provision of ongoing revenue support.²

In April 2022, in line with the package of measures announced by the Prime Minister to support greater UK energy independence in the British Energy Security Strategy³, the Government announced a doubled ambition of up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and Value for Money (VfM) with at least half of this coming from electrolytic hydrogen, drawing on the scale up of UK offshore wind and other renewables and new nuclear. We recently published the Hydrogen Production Delivery Roadmap which sets out our vision for hydrogen production to 2035, reaffirming this commitment to electrolytic hydrogen with ambitions to allocate up to 6GW of our 2030 ambition to electrolytic production, with alternative technologies also contributing towards this total.⁴ Technologies other than water electrolysis and CCUS-enabled natural gas reforming could have an important role to play in allowing us to scale up our hydrogen production in the 2030s. But to allow them to make a significant contribution in the 2030s, we need to start developing them now.

In July 2022, we confirmed our ambition to support up to 250MW of electrolytic hydrogen projects, subject to affordability and value for money, through the first hydrogen allocation round (HAR1) where projects could apply for HPBM revenue support as well as CAPEX support through the Net Zero Hydrogen Fund (NZHF). We announced a list of projects in August 2023 that were invited to the next stage of negotiations⁵ and we announced the final list of successful projects who will be awarded a Low Carbon Hydrogen Agreement alongside the publication of this document.⁶

Building on this, we published a market engagement document in May this year, setting out our proposed approach to the second Hydrogen Allocation Round (HAR2) process for low carbon hydrogen projects. The launch of HAR2 confirms our aim to support up to 875MW of capacity

¹[Ten Point Plan for a Green Industrial Revolution \(2020\)](#)

²[Design of a business model for low carbon hydrogen \(2021\)](#)

³[British Energy Security Strategy \(2022\)](#)

⁴[Hydrogen Production Delivery Roadmap \(2023\)](#)

⁵[Hydrogen Production Business Model/Net Zero Hydrogen Fund: Projects invited to negotiations](#)

⁶ The Low Carbon Hydrogen Agreement is the contract which underpins the hydrogen production business model.

through HAR2 by the end of 2025, subject to affordability and value for money, along with HAR1, helping to achieve our aim of up to 1GW of electrolytic hydrogen production projects to be in operation or construction by 2025.

Alongside this document we have published the Government response to the HAR2 Market Engagement document⁷, which summarises responses received to the Market Engagement exercise. This document sets out detailed guidance for projects looking to apply to HAR2 for HPBM revenue support.

1.2 Strategic Objectives and Scope

Our strategic objectives underpinning HAR2 are as follows:

- Kickstart the low carbon hydrogen economy, helping meet the ambition of up to 1GW of electrolytic hydrogen capacity in operation or construction by 2025, and by doing so help grow hydrogen supply chains.
- Support projects to deploy at scale, advancing government's ambition to deploy up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and value for money, with at least half from electrolytic hydrogen production capacity.
- Establish the frameworks to put the market on a pathway to deliver cost reductions and value for money, supporting the market to transition to a future price-based competitive allocation regime.
- Deliver carbon savings to allow us to stay on track to meet Carbon Budget 5, Carbon Budget 6 and other net zero commitments.

In designing and delivering HAR2, our objective is to streamline and use lessons learned from HAR1 to ensure the application process is simple and accessible for applicants and ensure the process is fair and transparent.

Government hopes to support up to 875MW through HAR2, but reserves the right to allocate less, for example if it does not see sufficient projects coming forward that meet the requirements of the round and present VfM to government.

The Hydrogen Production Business Model (HPBM) and Low Carbon Hydrogen Agreement (LCHA)

Projects applying to HAR2 will be considered for revenue support through the HPBM. The HPBM aims to provide price support through a variable premium model, with volume support provided indirectly via a sliding scale approach. Support through the HPBM may include revenue support for limited hydrogen transport and storage infrastructure, agreed on a project-by-project basis by taking several factors into account, including necessity, affordability and VfM. More specifically, this could include:

⁷ [Government response to Market Engagement on the second Hydrogen Allocation Round \(2023\)](#)

- The CAPEX, but not OPEX, costs associated with limited hydrogen transport infrastructure, and
- The CAPEX and/or OPEX costs associated with limited storage infrastructure.

Further information on eligible costs under the HPBM is set out in section 3.6.3 of this document. The government published the draft LCHA, the contract that underpins the HPBM, in August 2023.⁸ The LCHA is a private law contract between a hydrogen production counterparty⁹ and an eligible low carbon hydrogen producer.

For HAR2, we may make some updates to the LCHA to reflect policy changes and intend to engage with industry in due course, and any references to the LCHA within this document should be read accordingly.

Applicants should familiarise themselves with the draft LCHA and the contractual requirements that need to be fulfilled, noting it is not in its final form and further changes may be made to reflect policy changes in HAR2, as above.

1.3 Other Government Support

Government is providing significant support for research, development and demonstration of hydrogen use across the UK industrial sectors, power generation, domestic heating and transport.

Please see below for information and timings for DESNZ hydrogen funds that have launched or are launching in 2023/2024¹⁰:

- Industrial Energy Transformation Fund (IETF)¹¹: Supporting the deployment of energy efficiency and decarbonisation technologies, including industrial fuel switching to low carbon hydrogen. Support is also available for feasibility and engineering studies. Phase 3 of the IETF will open for applications in early 2024.
- Track 1 expansion of the CCUS Cluster Sequencing Process: Hydrogen Business Model Support for CCS-enabled hydrogen projects (HyNet and the East Coast Cluster): Hynet expansion: applications opened 13 December; East Coast Cluster expansion: applications will open from 2024.¹²

In addition, and as set out in the consultation response titled Hydrogen transport and storage infrastructure: minded-to positions published in August 2023¹³, Government intends to finalise the design of transport and storage business models by 2025. Government has published Market Engagement documents for both the transport and storage business models alongside

⁸ [DESNZ \(2023\) Low Carbon Hydrogen Agreement](#).

⁹ Government anticipates that the Low Carbon Contract Company (LCCC) will be the counterparty for the HPBM, subject to successful completion of administrative arrangements.

¹⁰ See the updated UK Hydrogen Economy Roadmap in the [Hydrogen Strategy Delivery Update](#) for further detail on timings and delivery for HMG hydrogen policy and funds.

¹¹ [Industrial Energy Transformation Fund](#)

¹² [Carbon Capture Usage and Storage \(CCUS\) December 2023 statement](#)

¹³ [DESNZ \(2023\) Hydrogen transport and storage infrastructure: minded-to positions](#)

this document – the Market Engagement documents set out further details about the proposed allocation processes for each model and the timings for the first allocation round.^{14 15}

Government encourages applicants to consider carefully which competition best meets their project's needs. Projects cannot receive government support from multiple sources for the same eligible costs and will need to comply with any relevant subsidy control requirements¹⁶.

In addition, multiple funds and partnerships have been established in the UK and EU to accelerate the growth of the hydrogen sector. Please see Annex B for some examples.

UK Infrastructure Bank (UKIB)

The UK Infrastructure Bank (“UKIB”) is a new, Government-owned policy bank. Its mission is to partner with the private and public sector to increase infrastructure investment to tackle climate change and drive regional and local economic growth across the United Kingdom.

The bank recently published a hydrogen sector update¹⁷ which sets out how the bank will tackle financing problems in the sector over the next 12-24 months and help amplify government policy. In its unique position between market and HMG, UKIB can play a leading role in overcoming barriers to investment.

All projects seeking support from UKIB must meet its investment principles of:

- Supporting regional and local economic growth or help tackle climate change;
- Being investment in projects relating wholly or mainly to infrastructure (which includes nature-based solutions, technologies and facilities);
- Delivering a positive financial return; and
- Crowding in significant private capital over time.

We encourage all projects to consider discussing their financing needs with UKIB alongside other sources of capital. If an Applicant would like more information about potential UKIB support, please contact projects@ukib.org.uk.

Applicants will also be able to opt-in to be contacted by UKIB through the EOI form they submit for HAR2, as well as consent to the sharing of the EOI form with UKIB, which will help UKIB understand projects and consider financing needs ahead of any engagement.

Please note, if an Applicant has submitted an application to HAR2, have provided consent to be contacted by UKIB and engaged UKIB to discuss financing, DESNZ and UKIB may share information provided by the Applicant (including information in its application) that may be pertinent to the assessment of HAR2 and/or its application for UKIB funding. Please contact the HAR2 inbox at HAR2@energysecurity.gov.uk if there is any information in your full

¹⁴ [Hydrogen Storage Business Model Market Engagement on the first allocation round \(2023\)](#)

¹⁵ [Hydrogen Transport Business Model Market Engagement on the first allocation round \(2023\)](#)

¹⁶ [Guidance on the UK's international subsidy control commitments](#)

¹⁷ [UKIB strategy update](#)

application submission that should not be shared with UKIB (e.g. commercially sensitive information relating to third parties).

Please note that the assessment of project proposals for UKIB funding will be considered independently from applications to HAR2 through UKIB’s investment processes and any offer of support will be subject to completion of satisfactory due diligence and legal documentation.

Please see Annex C, for the DESNZ disclaimer relevant to information signposted in this document related to UKIB.

1.4 Process Overview & Timeline

To be considered for an application under HAR2, applicants must follow the process set out below. For further information on each of the application stages, please see the relevant section within this guidance document.

Please note these dates are indicative, and government reserves the right to alter these timelines at any stage in the process.

HAR2 application stage	Description	Date
Application window launch	HAR2 opens to applications.	14 December 2023
Entry Process: Expression of Interest (EOI)	Projects looking to apply under HAR2 must submit an EOI, which will allow access to the final engagement session and the Online Application Form (see Section 2.2). DESNZ will also complete an initial eligibility check and may give feedback to applications which appear ineligible.	14 December 2023 – 5 February 2024 (EOI deadline)
Engagement sessions	DESNZ intends to carry out engagement sessions to support Projects to complete their application (see Section 2.3).	January - February 2024 (See Section 2.3 for more detail)
Application submission window	Final application must be submitted to DESNZ (see Section 3).	6 February - 19 April 2024

Eligibility check	An eligibility check will be carried out to confirm whether applications meet eligibility criteria (see Section 3.5).	April 2024 - Autumn 2024
Evaluation	Before moving to the evaluation of deliverability, DESNZ will apply a pass/fail threshold in respect of projects' maturity level. Applications will then need to meet a minimum deliverability score before moving to full assessment (see Section 3.6). Eligible applications will then be assessed against the remaining evaluation criteria.	
Shortlisting	We intend to announce a shortlist of projects who will be invited to the agreeing an offer stage (see Section 4).	Autumn 2024
Due diligence	Projects will be required to complete and submit a Request for Information (RFI) template. DESNZ will undertake further investigation and scrutiny of shortlisted projects (see Section 5.3).	Autumn 2024 - early 2025
Agreeing an Offer	DESNZ will seek best and final offer submissions to agree an offer of support with selected projects (see Section 5.4).	
Award of Contract	Successful projects will receive a conditional offer from DESNZ (see Section 5.5). If projects are awarded an LCHA, they will be required to fulfil the Initial Conditions Precedent set out in the LCHA within 20 business days of the agreement date.	From early 2025
Project Delivery Commences	As set out in HAR2 eligibility criteria, Projects will be required to be operational between 2026 and 2029.	From 31 March 2026 to 31 March 2029.

Future Allocation Rounds

Alongside the launch of HAR2 we have published the Hydrogen Production Delivery Roadmap¹⁸. The roadmap sets out how we expect the hydrogen production landscape to evolve towards 2035, including details about future Hydrogen Allocation Rounds. To increase certainty for industry and bring forward long-term investment into low carbon hydrogen we set out our intention to move to annual allocation rounds for the HPBM from 2025 out to 2030, for electrolytic and potentially other alternative technologies.

Further detail on our planned capacity ambitions for HAR3 and HAR4, and how the Hydrogen Allocation Rounds will evolve over these rounds can be found in the roadmap.

1.5 General Considerations

Without prejudice to any other rights reserved in this document, Government reserves the right to discontinue a Project's application at any point. Government may discontinue the application process with a particular Project where:

- the Project seeks to renegotiate elements of its Submission which would mean that it no longer satisfies the eligibility criteria; or
- the Project seeks to renegotiate elements of its Submission which would have an adverse effect on the score awarded to the submission at any stage of HAR2; or
- the Project does not comply or is not able to demonstrate during the Agreeing an Offer stage, that it will be able to comply with the plans set out in its Submission and/or under any of the evaluation criteria; or
- the Project does not comply with the requirements in relation to adherence to the principles and/or terms of the HPBM at any stage of HAR2 or Agreeing an Offer stage; or
- Government is unable to verify information contained within that Project's submission which is relevant to the eligibility criteria and/or the score awarded at any stage of HAR2; or
- Government has otherwise determined in accordance with the rules provided to Projects during any stage of HAR2 or subsequent Agreeing an Offer stage that the relevant Project will not be awarded financial support.

Being invited to participate in any stage of HAR2 does not mean that support will be awarded. For HAR2, projects can apply for HPBM revenue support only and there will be no NZHF CAPEX support available at point of application. This is in line with feedback received during the HAR2 Market Engagement Exercise which confirmed that most projects view revenue support as the main factor that drives decisions towards Final Investment Decisions (FID), rather than CAPEX support, as well as calls from industry for a more streamlined approach for HAR2. However, Government recognises the value of providing up-front CAPEX to reduce the

¹⁸ [Hydrogen Production Delivery Roadmap \(2023\)](#)

amount of ongoing revenue support projects require through the HPBM and therefore the position on NZHF CAPEX will remain under review. Government will inform applicants at the earliest opportunity should NZHF CAPEX be introduced at a later stage. Please see HAR2 market engagement response for further detail on industry feedback and the Government position.

At any stage in the process Government may, at its sole discretion, contact Projects to clarify any applications (or parts thereof) which are unclear, contain genuine mistakes, gaps, minor omissions or in relation to ambiguous responses to questions. However, Government is not under any obligation to do this. Where an application is not complete or is inconsistent, vague, or ambiguous, Government may consider the application on the basis of the interpretation or meaning that is the most adverse, and / or consider the application as not compliant with the rules and reject / disqualify it.

Government may also issue supplementary questions in relation to the information submitted. Government reserves the right to consider a response to any supplementary question at its absolute discretion. Unless specified otherwise, Projects will have three working days to respond to these requests. For any reason, including, but not limited to, if an answer is not received within the time limit, Government reserves the right not to consider the answer to a supplementary question in its evaluation.

The Secretary of State reserves the right to cancel, amend or vary the HAR2 Process, including any envisaged stage and any document issued pursuant to it, at any point and for any reason with no liability on their part. In particular, the Secretary of State is not liable for any costs resulting from any amendment or cancellation of, or delay to, the process, nor for any costs resulting from a Project expressing an interest in HAR2, preparing a Submission in this round or discussing or negotiating any proposed support mechanisms.

The proposed terms of any support which may be offered to any Project are not final and remain subject to further development by Government in consultation with relevant regulators and the Devolved Administrations, including in the light of the development and Parliamentary approval of any necessary legislation and will require completion of necessary contractual documentation in a way which is considered consistent with subsidy control principles.

It is expected that details of support offered for Projects, with the exception of commercially sensitive information, may be published following the completion of the Agreeing an Offer Stage and awards.

The process will primarily be executed by Government and its technical, commercial, and legal advisors. Support and expertise will also be drawn from across Whitehall including HM Treasury (HMT), the Infrastructure and Projects Authority (IPA) and UK Government Investments (UKGI) as well as from its various Partner Organisations as appropriate including the Office of Gas and Electricity Markets (Ofgem) and the Low Carbon Contracts Company (LCCC).

Government may also share information provided by Projects (including information within the Submissions or EOIs) with other parts of government for the purposes of policy development

and facilitating coordination in certain areas if relevant. In addition, this information may be aggregated and anonymised for the purposes of engagement with external audiences.

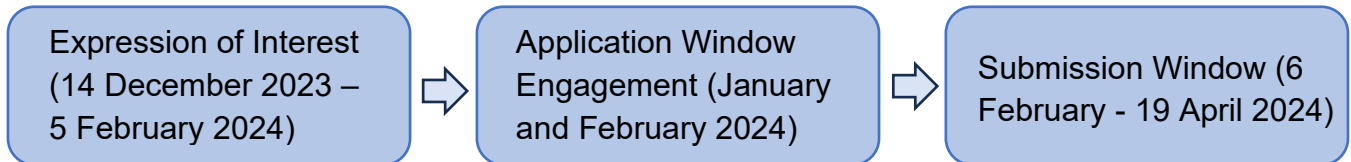
Government will follow all applicable data protection laws in how it treats personal information. Please see DESNZ's personal information charter¹⁹, which sets out our standards for the collection, holding, or use of personal information.

¹⁹ [DESNZ Personal information charter](#)

Section 2: Entry Process

2.1 Overview

The entry process will consist of three key stages:



2.2 Expression of Interest

To be considered for an application to HAR2, a Project Representative must first submit an Expression of Interest (Eol) to Government on behalf of their project by 23:59 on 5 February 2024. The Project Representative is expected to be from the primary, or partner, organisation responsible for Project development which must be a legal entity. This Project Representative will also be responsible for submitting the full application and all relevant Project Information.

Submitting the Eol by this date will allow Projects access to the Online Application Form and the final engagement session listed below. The Online Application Form link will be sent to the email address of the Project Representative and requires a Project to provide details related to their organisation and governance arrangements. Submission of the Eol form is a necessary condition of participation in HAR2. Any applications received without prior submission of an Eol will not progress to the evaluation stage. The Eol form can be found [here](#).

Project representatives will be asked to confirm to the best of their knowledge and belief that they will be able to meet the eligibility criteria (see Section 3.5) within the Eol, and to provide verifiable information about their project relevant to each eligibility criteria, as well as details of all project partners.

Government may provide feedback to Projects at the Eol stage if it appears from the information provided that a project does not meet one or more of the eligibility criteria. However, projects will not be prevented from making a full application on the basis of the information provided. Eol answers are considered as indicative only and not as firm responses.

Although under no obligation to do so, Government reserves the right to process Eols received after the above deadline at its absolute discretion. Projects that wish to apply to HAR2 but have not submitted an Eol by the 5 February 2024 should contact HAR2@energysecurity.gov.uk immediately.

2.3 Application Window engagement

Engagement Events

In order to support Projects in preparing submissions, Government intends to carry out online engagement sessions, to ensure Projects have a clear understanding of the criteria and objectives of HAR2 and how to complete an application. Q&A from the engagement events will be published online.

Event	Dates	Purpose	How to attend
Competition briefing webinar	18/12/2023 10:30-11:30	Share details of HAR2 and the application process	Register interest here
Engagement sessions	15/01/2024 14:00-15:30 22/01/2024 14:30-16:00	Provide information about the application form and supporting templates (both sessions will cover the same content, so please only register for one)	Register interest here
Final engagement session	February – the exact date and time will be confirmed closer to the time to those that submit an EoI.	Focus on the HAR2 process and criteria, with the opportunity to ask submission specific queries	Invitation will be shared with the Project Representative that submit an EoI (can be forwarded on to a maximum of 2 project partners)

Clarification Questions

Projects may submit clarification questions on the application process by emailing HAR2@energysecurity.gov.uk. Government will publish the question and the response provided, with all identifying data anonymised. We aim to publish responses to clarification questions within 10 working days.

In the email, Projects should explain why the question has been raised so the context is clear. The question should clearly identify the document and text for which clarification is being sought. If a clarification question is unclear follow up questions will be asked to the Project to help answer the question, if no response is given to these then the clarification question will not be answered.

The deadline for the submission of clarification questions is 23:59 on 22 March 2024, ahead of the submission window closing on 19 April 2024.

2.4 Application submission

Project Representatives will be required to submit and upload their application for funding with all required and supporting evidence by 23:59 on 19 April 2024. The application submission window will open at 00:01 on 6th February. Applications submitted before this date will not be considered. They will be responsible for submitting all the relevant Project information, as set out in Section 3.

Section 3: Submitting an Application

3.1 Overview

As per the timeline set out in Section 1.4 of this document, Project Representatives will be required to submit their application for funding by 23:59 on 19 April 2024. The application submission window will open at 00:01 on 6th February. Applications submitted before this date will not be considered. The following section sets out the information applicants must consider before submitting all relevant Project information.

3.2 Rules and Project Requirements

The following section sets out specific funding rules and requirements applicants should consider when submitting an application for HAR2.

Application limit

For HAR2, a business can lead on up to six applications, which must be materially different, and can be included as a collaborator, or project partner, in a further six applications. This approach will be reviewed for future allocation rounds.

To lead a project or work alone, your organisation must be a UK registered business of any size. A business is defined as an enterprise undertaking economic activities. Academic institutions, research and technology organisations (RTOs), public sector organisations or charities cannot lead or work alone.

To be included as a collaborate or project partner in an application, your organisation must be one of the following UK registered:

- business of any size
- academic institution
- charity
- not for profit
- public sector organisation
- research and technology organisation (RTO)

In the event a business submits more than six applications, the first six applications submitted will be reviewed and assessed only. Any subsequent applications beyond that will not be accepted.

Funding rules

Funding will not be committed unless at least: all subsidy control requirements have been met, Government is comfortable with any balance sheet implications, all relevant statutory consents have been completed, and Government is comfortable that the Project represents value for money for the consumer and the taxpayer.

New phases of existing projects will be eligible to apply, including projects that have been awarded funding under HAR1, if works are carried out to increase the capacity by at least 5MW (H2 HHV).

HAR1 and NZHF Strand 2 projects

If a project was unsuccessful in applying to HAR1 or NZHF Strand 2²⁰, or for any reason a project in HAR1 or NZHF Strand 2 withdraws or is no longer part of the HAR1 or NZHF Strand 2 allocation process, we strongly encourage projects to consider applying for HAR2, noting any feedback received and changes to the allocation process and criteria. If a project is no longer part of the HAR1 or NZHF Strand 2 allocation process, it will need to withdraw completely from HAR1 or NZHF Strand 2 before applying to HAR2, and will be required to submit an EOI as per the process set out above.

Participation in other Government schemes

Projects that are already in receipt of Government funding may be eligible to apply for HAR2, subject to meeting subsidy control rules and preventing subsidy cumulation in relation to the same costs.

Renewable Transport Fuel Obligation (RTFO)

Government recognises that some projects may want support through both the HPBM and the RTFO. Producers in receipt of HPBM support will be allowed to participate in the RTFO. Some volumes produced will be allowed to be claimed under the RTFO, subject to meeting the RTFO's eligibility criteria, but claiming under both the HPBM and RTFO for the same volumes of hydrogen will not be permitted. Specific reporting, monitoring and enforcement arrangements guarding against producers claiming under both schemes for the same costs will be included in the LCHA.

Applicants who intend to seek support under both the RTFO and HPBM will need to demonstrate that the project is capable of meeting RTFO eligibility criteria. Further detail is set out in Section 3.5.10.

²⁰ The Net Zero Hydrogen Fund (NZHF) Strand 2 provides capital expenditure (CAPEX) support for hydrogen production projects that do not require revenue support through the Hydrogen Production Business Model (HPBM). The competition windows for NZHF Strand 2 are now closed.

The Cluster Sequencing process

Eligible CCS-enabled low carbon hydrogen projects may apply for revenue support via the Cluster Sequencing Process.²¹ Projects may not make an application to a Hydrogen Allocation Round and Cluster Sequencing round at the same time. An unsuccessful application to a Cluster Sequencing round would not preclude a project from making a future application to a Hydrogen Allocation Round (and vice versa) where they otherwise meet the eligibility requirements of that round.

Sourcing renewable electricity from Government-supported generators

Government understands some projects may be planning to 'co-locate' the hydrogen production facility with generators. Projects wishing to co-locate with Contracts for Difference (CfD) and Renewables Obligation (RO)-subsidised generators will need to meet relevant requirements set out in the CfD and RO guidance documents.

Links to relevant guidance documents can be found below:

- [Private Wire CfD Guidance](#)
- [CfD co-location Guidance](#)
- [RO co-location guidance](#)

Applicants considering co-locating with a CfD or RO supported asset with questions about these requirements should get in touch with LCCC or Ofgem respectively, at the earliest opportunity.

Environmental considerations and regulations

Environmental, planning, and other regulations may also apply to projects applying for the HPBM. Please see Annex A on guidance for environmental regulations of relevance for electrolytic projects and gasification/pyrolysis of biomass/wastes and gas splitting producing solid carbon projects. For Projects using biomass/waste feedstocks, please also refer to the LCHS for further guidance.

For information, the Environment Agency, in collaboration with the other UK environmental regulators, intends to publish Guidance on Emerging Techniques (GET) for electrolytic hydrogen projects at the end of Q1 2024.

3.3 Submission Structure

The Project Representative, who will be provided access to the Online Application Form following completion of the EoI, will be responsible for submitting all the relevant Project information for the final submission of the application. The Project Representative will need to create an account to complete the Online Application Form.

²¹ [Carbon Capture Usage and Storage \(CCUS\) December 2023 statement](#)

Project Representatives must provide completed copies of the relevant submission forms found on the [HAR2 landing page](#), along with supporting and mandatory evidence and information where required, to be considered under HAR2. The forms required for the final submission are as follows:

- Project Application Form – this document consists of a series of key questions relating to the detail of the project submission and along with the Project Datasheet will form the primary basis for Government to undertake the eligibility check and score Projects on the basis of evaluation criteria.
- Project Datasheet (Annex A) – This document requires Projects to input and reference information regarding the eligibility and evaluation criteria for HAR2. There are three different versions of the datasheet, one for each of the hydrogen production technology types eligible under HAR2. Projects should use the datasheet relevant to their technology type. Please complete Annex A1 if using electrolytic, Annex A2 if using gasification/pyrolysis of biomass/wastes and Annex A3 if using gas splitting producing solid carbon production technologies.
- References Matrix (Annex B) - This document requires Projects to reference all evidence submitted alongside the Project Application Form and completed templates. Evidence documents must be named in line with the reference requirements set out within the template and Projects must clearly state the application questions the evidence is supporting.
- Hydrogen Emissions Calculator – The Low Carbon Hydrogen Standard (LCHS) sets a maximum threshold for greenhouse gas emissions allowed in the production process for hydrogen to be considered ‘low carbon hydrogen’. This calculator is focused on calculating GHG emissions from one consignment of hydrogen, according to the methodology set out in the standard. This also includes the additional Biomass Requirements for biomass and waste feedstocks. This calculator will be used during the eligibility stage to confirm whether a project is likely to be compliant with the LCHS.
- Fugitive Hydrogen Emission Risk Reduction Plan - this will be used during the eligibility check to demonstrate how fugitive hydrogen emissions at the production plant will be minimised.

Government encourages Projects to be aware of the word limits attached to each question in the Project Application Form. Any information provided beyond the word limits will be removed before information is provided to assessors and will not count towards the score.

The relevant documents and attachments must be uploaded by the Project Representative in Section B of the Online Application Form. In addition, the Project Representative is required to provide a range of further information directly via the Online Application Form, including:

- Information relating to the Project and its parent company/companies (if applicable).

- Declarations in relation to compliance of the Project with equalities obligations, applicability of either mandatory or discretionary exclusions to the Applicant²², the accuracy of any and all information contained within the submission. Please note, Projects will be required to provide similar information relating to any project partners or any other person who has powers of representation during due diligence.

Please note that all information requests within the Project Application Form should be taken as relating only to the Applicant, unless clearly indicated otherwise.

After submitting, Projects will be notified via email to confirm that the submission has been received by Government. Government reserves the right to take any piece of information provided in any section of the submission into account in relation to any component of the HAR2 scoring to which it is pertinent, including shortlisting considerations.

Government may, but is not required to also use publicly available information about the entities involved in the application during the assessment process for the purpose of cross-checking the information provided and seeking to redress any omissions. Government reserves the right to take relevant information related to any entities listed in the application from other Project submissions into account when assessing a Project, and to contact such third parties to confirm information in the applications, for the purpose of cross-checking the information provided in the applications to ensure consistency and fairness of the assessment of Projects.

Information submitted will also be used at the Agreeing an Offer Stage, as outlined in Section 5.

3.4 General Considerations for Submission

Credibility and Consistency of Information

In reviewing and assessing applications, Government will place significant emphasis on the credibility and consistency of information provided. This will also be taken as evidence of the maturity of submissions.

Government would advise Project Representatives to ensure that all projections made in their Project Application Form and wider submission (including deployment dates, emissions volumes, and cost profiles) are robust and supported by the accompanying documentation that they submit.

Across each of the evaluation criteria set out in Section 3.6 of this document, Projects should provide supporting information and evidence which demonstrates and substantiates the credibility of projections made in their submission. The onus will be on the Project Representative to demonstrate to Government the credibility of information in a way that the Project considers to be most appropriate; this may be, for example, through evidence of board

²² These may apply where, in the past 5 years, the Applicant has been convicted of: participation in a criminal organisation, corruption, fraud, terrorism, money laundering, breaches of environmental regulations, labour laws.

sign off and/or letters of intent. Projects should note the application submission is what is scored and any supporting evidence provided is used to substantiate and validate that the response is accurate and robust.

Projects are required to submit specific, targeted evidence to support the application. The quality of evidence is critical in reviewing the application. Lack of evidence, poor quality evidence, or large quantities of evidence that isn't directly relevant to what is sought in the evaluation criteria may negatively impact the assessment of the projects. If large documents are required and submitted, please ensure specific pages or sections are referenced within the relevant sections of the application form, to make clear which answers the document is supporting.

Where answer statements are provided that are not supported by credible evidence, or where the evidence provided contradicts such statements, Government reserves the right to adjust key submission information such as cost and schedule data to more accurately reflect the evidence provided upon full evaluation.

Projects must consider their obligations under competition law before agreeing to share any information that could amount to competitively sensitive information. Projects will not be penalised in the scoring for refusing to share information in circumstances in which the sharing of that information could give rise to a breach of competition law.

3.5 Eligibility criteria

This section sets out the eligibility criteria for projects applying into HAR2. Eligibility criteria help ensure financial support is aligned with the strategic objectives of the round and provide clarity on which Projects could potentially receive financial support and discourage speculative applications.

The eligibility criteria in this section are intended to align with and be additional to the eligibility requirements contained in the Hydrogen Production Revenue Support (Directions, Eligibility and Counterparty) Regulations 2023²³.

Assessors will complete an eligibility check following submission of applications to confirm the application meets the defined eligibility criteria. Those that are considered to meet the eligibility criteria will proceed to evaluation (see Section 3.6).

The table below sets out a summary of the ten eligibility criteria Projects will need to meet. More information on each eligibility criteria is set out in the rest of this section.

²³ The regulations were laid in draft on 8 November 2023, and are expected to come into force in due course, subject to Parliamentary approval, and can be found here: <https://www.legislation.gov.uk/ukdsi/2023/9780348253474>.

Eligibility criteria	Description
Project location	Project located entirely in the United Kingdom and the Applicant is a UK registered business.
Delivery year	Can demonstrate that the Project can be operational between 31 March 2026 and 31 March 2029.
Technology Readiness	Using core technology that has been tested in a commercial environment, with a Technology Readiness Level (TRL) of 7 or more.
New-build production facility	New build hydrogen production facilities, including new phases of existing projects, where at least 5MW (H2 HHV) of new hydrogen production capacity is added to an existing plant.
Technology Type	Be one of the following eligible production technologies: <ul style="list-style-type: none"> • Electrolytic • Gasification/pyrolysis of biomass/wastes (without CCS) • Gas splitting producing solid carbon
Identified and engaged with an offtaker	Has identified and engaged with at least one qualifying offtaker.
Identified and engaged with a core production technology supplier	Has identified and engaged with a core production technology supplier.
Hydrogen production capacity	Meet a minimum hydrogen production capacity of 5MW H2 HHV ²⁴ .
Low Carbon Hydrogen Standard	Capable of meeting the requirements of the Low Carbon Hydrogen Standard (LCHS).
Financial access	Can demonstrate access to finance.

²⁴ When considering hydrogen production capacity, we care about the maximum MW of hydrogen output of the facility in high heating value terms before load factor or plant availability are taken into account.

Projects that pass the eligibility check will progress to evaluation, details of which are set out in Section 3.6 of this document. During the evaluation process government will perform additional checks on the credibility of the evidence provided and the robustness of any calculations involved. If upon closer scrutiny of a Project's supporting evidence during evaluation, it becomes apparent that a Project does not meet one or more of the eligibility criteria, Government will at that point consider it to have failed eligibility and reserves the right to end the evaluation.

The following section sets out further detail on each eligibility criteria and requirements Projects will need to meet to pass the eligibility check.

3.5.1 Project plant located entirely in the UK and the Applicant is a UK registered business.

Hydrogen production facilities should be located entirely in the UK to be eligible to apply. At the eligibility stage, Projects will be required to provide the location of the project.

The application must be led by a UK registered business that is incorporated in the UK. This criterion reflects Government's aim, as set out in the Hydrogen Strategy, to deploy up to 10GW of low carbon hydrogen production capacity in the UK by 2030. It also supports decarbonisation across the UK in line with our 2050 net zero target and CB6 obligations.

Projects will be required to provide the Location Plan, including the postcode and their UK Registration Number.

3.5.2 Operational between 31 March 2026 and 31 March 2029

Projects will need to demonstrate that they can be commercially operational within one of three delivery years between 31 March 2026 and 31 March 2029. In the context of new build hydrogen production facilities, being operational means the date the Project is confirmed to meet the relevant Operational Conditions Precedent (OCP) and the Project begins operating and is capable of producing hydrogen that will be sold to offtaker(s). This criterion reflects Government's aim to deploy up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and VfM, with the intention that at least half of this will be from electrolytic hydrogen. Applicants should make clear the delivery year in which they plan to be commercially operational and this should be substantiated by the evidence provided that this delivery year best fits their plans for operation and deployment. We expect projects to set ambitious but deliverable timelines.

Applicants will be asked to select their delivery year and provide a target Commercial Operation Date (COD) and a Project Schedule to evidence this date. The Project Schedule and the robustness of the information provided to support it will be assessed further during the evaluation stage.

Please note that successful applicants will agree, in the Agreeing an Offer stage, a Target Commissioning Date and Target Commissioning Window within which the project is expecting

to 'commission' the facility and fulfil the LCHA's Operational Conditions Precedent.²⁵ The latter must be fulfilled before a Start Date can be declared and payments can commence. If the Producer has not satisfied the Operational Conditions Precedent by the end of the Target Commissioning Window, the 15-year term of the LCHA will start to erode. However, payments will not commence unless and until the Start Date occurs. The Longstop Date is the last day of a 12-month period following the final day of the Target Commissioning Window. If the Producer fails to satisfy the Operational Conditions Precedent by the Longstop Date, the LCHA Counterparty has a right to terminate the LCHA.

Projects will also need to meet the Initial Conditions Precedent set out in the LCHA, and which require the Producers to meet certain legal and regulatory requirements and conditions as soon as reasonably practicable and by no later than 20 days after the contract signature.

Please see the draft LCHA for more details of the commissioning process and LCHA requirements²⁶ noting that these are subject to change.

3.5.3 Using core technology that has been tested in a commercial environment, with a Technology Readiness Level (TRL) of 7 or more

To be eligible to apply to HAR2, projects must be using core production technology that has been tested in a commercial environment, with a TRL of 7 or more. This criterion ensures our funding picks up where DESNZ innovation funding ends. In this context, the core production technology refers to:

- The electrolyser, for an electrolytic project;
- The gasifier/pyrolysis reactor for a gasification/pyrolysis of biomass/wastes plant;
- The reactor for a gas splitting producing solid carbon plant.

For the purpose of this document, Government is defining TRL 7 as 'Integrated Pilot System Demonstrated: Prototype near or at planned operational system, requiring demonstration of an actual system prototype in an operational environment'. Table 1 sets out definitions of Technology Readiness Levels 1 to 9 for reference. Projects are required to provide a relevant production technology specification and evidence to prove that at a minimum, TRL 7 'Integrated Pilot System Demonstrated' has been successfully demonstrated. TRL definitions are listed below.

²⁵ As set out in the draft LCHA, the Target Commissioning Window means the 12-month period commencing on a date to be agreed on a project-by-project basis. The Target Commissioning Date means a date falling within the Target Commissioning Window and will be agreed a project-by-project basis.

Table 1: Definitions of Technology Readiness Levels 1 to 9	
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 studies 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.

3.5.4 New-build production facility

Only new build hydrogen production facilities are eligible to apply to HAR2. This criterion reflects Government's aim to deploy up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and VfM, with the intention that at least half of this will be from electrolytic hydrogen.

For the purpose of this document, Government is defining 'New Build Production Facilities' as a newly constructed facility built for the specific purpose of producing hydrogen.

This also includes the carrying out of works to an existing project where at least 5MW (H₂ HHV) of new hydrogen production capacity is added to an existing plant.

Where the project application is for a new phase of an existing LCHA project (i.e. has been awarded an LCHA under HAR1), the application may propose to share a balance of the plant, including hydrogen transport and storage equipment, with the existing project. In this scenario, and if agreed with DESNZ, the terms of any LCHA awarded to the existing project may need to be renegotiated to enable both phases of the project to comply with LCHA terms. This is to enable both phases of the project to comply with LCHA terms (such as undertakings regarding transport and storage infrastructure), to avoid over-subsidy and to monitor compliance with the Low Carbon Hydrogen Standard.

New phases will only be eligible to receive support on the CAPEX and OPEX costs associated with the new capacity added. We may consider an exemption to this rule around eligible costs for new phases of projects, on a case-by-case basis, for systems that include existing electrolyzers, gasifiers or reactors that have received support via Net Zero Innovation Portfolio (NZIP) funding whereby some costs associated with this existing infrastructure might be deemed eligible for Hydrogen Production Business Model revenue support. Projects will be required to meet subsidy control requirements and will not be able to seek funding on the same costs twice.

Projects will be required to provide a basis for design or an engineering study to evidence this criterion.

3.5.5 Using an eligible production technology

For HAR2, the following production facilities will be eligible for support:

Eligible production method	Definition
Electrolysis	Refers to splitting water into hydrogen and oxygen using electricity.
Gasification/Pyrolysis of Biomass/Wastes without CCS	Refers to the thermochemical decomposition of solid or liquid biomass or waste feedstocks in the presence of limited or no oxygen.
Gas Splitting Producing Solid Carbon	<p>Refers to the heating or ionisation of fossil/biogenic hydrocarbon gases, to generate hydrogen and solid carbon.</p> <p>To be eligible to apply projects must demonstrate the ability to meet the LCHS, which for this production route includes specific rules around permitted end uses of the solid carbon produced. This is set out in Version 3 of the LCHS and accompanying data annex.</p>

This reflects Government’s position to support multiple hydrogen production routes where they provide strategic benefits, and our understanding is that these technologies are potentially capable of meeting all other HAR2 eligibility criteria (please see further detail in the government response to market engagement on HAR2).

We encourage eligible biomass/waste gasification or pyrolysis projects that have access to the CCUS networks to add CCS and apply for support via the Cluster Sequencing process, via Track 1 expansion which opened on 13 December or Track 2. This will make the project more attractive to Government as it will deliver lower carbon hydrogen. Further information on the Cluster Sequencing process can be found on gov.uk²⁷.

Projects will be required to describe their hydrogen production technology and provide a hydrogen production technology specification as evidence that the technology meets the definition set out by DESNZ.

Eligible waste feedstocks

Projects using waste feedstocks must process at least one of the following feedstocks:

- Municipal Waste²⁸,
- Commercial and Industrial Waste²⁹,
- Clinical Waste³⁰, and/or,

²⁷ <https://www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-2>

²⁸ Household waste and waste of a similar composition from other sources

²⁹ Waste from commercial and industrial activities

³⁰ Waste produced from healthcare or similar activities

- Hazardous waste³¹.

The waste feedstock used must be appropriate for use in the waste management facility type in line with the priority order of the Waste Hierarchy³² and environmental permit expectations.

Projects using waste feedstocks must be able to provide an environment permit or credible plans to obtain one.

3.5.6 Have identified and engaged with at least one qualifying offtaker

Hydrogen producers looking to apply for support would need to have identified at least one qualifying offtaker for their hydrogen, where “qualifying” refers to offtakers in respect of which the hydrogen sold is eligible for HPBM support under this allocation round, provided all other requirements are met (a list of non-qualifying offtakers for the purposes of the HPBM support are listed below). This is to give assurance that, if the project were to receive funding, it is sufficiently developed in concept to deploy and deliver carbon savings.

For the purpose of this document, any offtaker of low carbon hydrogen is a “qualifying offtaker” except where:

- Their planned end-use of the hydrogen is for hydrogen blending into the gas distribution and/or transmission network,
- the hydrogen is to be exported, and/or
- The offtaker is a risk-taking intermediary. For the purpose of determining eligibility, a risk-taking intermediary is defined as a person that purchases hydrogen for the purpose of resale.

Please see the Government response to market engagement on HAR2 for further detail behind the rationale for these non-qualifying offtakers for HAR2. Please note, as set out in the recently published Strategic Policy Decision on Hydrogen Blending into GB Gas Distribution Networks, we will consider how any project that is awarded an LCHA for HAR2 may be able to request a change to their contract to the Government appointed counterparty, aligned with the strategic position on blending in the future.

Government is also considering the treatment of hydrogen for heat, which may require use of risk-taking intermediaries, to enable these to be supplied by HPBM-subsidised hydrogen. The potential role of hydrogen in heating is subject to strategic decisions in 2026.

Projects will be required to provide details of their proposed offtakers and provide an agreement or evidence of progress towards an agreement with potential qualifying offtakers. This could be shown, for example, by a memorandum of understanding or letter of intent between the hydrogen producer and proposed offtaker if available.

³¹ Waste containing substances harmful to humans or the environment such as chemicals or asbestos: <https://www.gov.uk/dispose-hazardous-waste>

³² The Waste Hierarchy can be viewed here: <https://www.legislation.gov.uk/ukxi/2011/988/contents/made>

3.5.7 Has identified and engaged with a core production technology supplier

Hydrogen producers looking to apply for support through HAR2 would need to have identified and engaged a hydrogen production technology supplier(s) in respect of the relevant Project. This is to give assurance that, if it were to receive funding, the Project is sufficiently developed in concept to deploy. For the purpose of this document, the core production technologies for each production route are listed below:

- For Electrolysis, the core technology is an electrolyser
- For Gasification/Pyrolysis of Biomass/Wastes, the core technology is a gasifier or pyrolysis reactor
- For Gas Splitting Producing Solid Carbon, the core production technology is a reactor

Projects will be required to demonstrate their engagement with supplier(s), for example through a budgetary quote or a completed Request for Information (RFI) response from a supplier.

Government recognises that the supplier may not be confirmed at this stage, therefore, the evidence provided does not need to consist of a final quote. However, supporting evidence of formal agreements would be welcome. Note, projects will be asked to provide further information on suppliers as part of the deliverability assessment.

3.5.8 Minimum Hydrogen Production Capacity of 5MW (H₂ HHV)

For HAR2, Government has set a minimum production capacity of 5MW (H₂ HHV). With regards to the metric, this is the maximum MW of hydrogen output of the facility in high heating value terms, before load factor or plant availability are taken into account. This reflects Government's strategic aim for the round of supporting projects to deploy at scale.

The 5MW threshold applies to individual projects and should comprise one single facility in a single location. Projects will not be able to aggregate capacity across different locations or have a phasing approach to build capacity gradually to 5MW. Where projects are applying for support for a new phase of an existing project, the new phase must be at least 5MW.

Projects will be required to describe the size of their hydrogen production facility and provide the hydrogen production technology specification stating production capacity. If the technology specification does not state production capacity in the correct metric (MW H₂ HHV), projects will be required to describe how they have calculated their hydrogen production capacity, including the assumed conversion efficiency.

3.5.9 Capable of meeting the Low Carbon Hydrogen Standard (LCHS)

Hydrogen producers looking to apply for support will need to demonstrate how hydrogen production proposals are capable of meeting the requirements of the UK Low Carbon Hydrogen Standard, Version 3, December 2023³³. This criterion will ensure that hydrogen

³³ [UK Low Carbon Hydrogen Standard, Version 3, December 2023: guidance on greenhouse gas emissions and sustainability criteria](#)

production receiving HPBM support is sufficiently low carbon. Specifically, the standard establishes a threshold for greenhouse gas emissions allowed in the production process for hydrogen to be considered low carbon, and a methodology for calculating these emissions. The standard sets a single threshold for absolute emissions at point of production at 20 gCO₂e/MJLHV of hydrogen. The standard also sets out a methodology for calculating the GHG emissions intensity of electricity used in hydrogen production.

For LCHS Compliance, hydrogen produced from waste and biogenic feedstocks will have to follow Biomass Requirements. These requirements are intended to mitigate against negative environmental and social consequences that can arise from sourcing of biomass used as a feedstock. These requirements include Sustainability Criteria, the Minimum Waste and Residue Requirement, and reporting on estimated indirect land-use change emissions. The Sustainability Criteria consist of the Land Criteria, Soil Carbon Criteria and Forest Criteria as applicable to the feedstock. The Minimum Waste and Residue Requirement is that a minimum proportion of 50% (by Lower Heating Value energy content) of the Hydrogen produced in a calendar month shall be derived from Inputs classified as biogenic Wastes or Residues. If you intend to use waste or biogenic feedstock, you must provide details of your emissions related to indirect land-use change as per Annex E of the LCHS guidance document and upload supporting documentation if required.

Projects will be required to complete and upload the Hydrogen Emissions Calculator (HEC) for the first year of operation and provide the projected gCO₂e/MJLHV of their hydrogen, demonstrating that the project is likely to meet the LCHS guidance including the emissions threshold of 20gCO₂e/MJLHV H₂ (leeway of +0.5 gCO₂e/MJLHV H₂). If you expect a major shift in inputs within the first three years of operation, please complete for the first, second, and third years of the calculator. The calculator will confirm based on the data submitted whether the project is likely to be compliant with the LCHS.

Projects must also provide a Fugitive Hydrogen Emission Risk Reduction Plan demonstrating how fugitive hydrogen emissions at the production plant will be minimised. Projects will have to detail the sources of emissions and their expected rate of fugitive hydrogen losses in kgH/year with justifications of estimates, measurement, and monitoring in place. A template for this plan is provided on the LCHS webpage³⁴ with further guidance detailed in Chapter 10 of the LCHS.

Projects may be required to comply with an updated version of the LCHS, if there are any updates made between application stage and contract award. Producers will not be required to comply with new versions of the LCHS main guidance after contract award³⁵.

Projects that receive funding will also be required to submit Annual Reports on fugitive emissions. In the Annual Report, operational projects will report back on their estimated fugitive hydrogen emissions against measured/estimated fugitive emissions for the year. The report will be an Excel spreadsheet which will be available online alongside the LCHS.

³⁴ [UK Low Carbon Hydrogen Standard, Version 3, December 2023: guidance on greenhouse gas emissions and sustainability criteria](#)

³⁵ Producers will be required to apply the most recent version of the LCHS Data Annex to determine their emissions, in accordance with the relevant LCHA requirements.

3.5.10 Demonstrated access to finance

Projects applying for support under HAR2 will need to be able to demonstrate access to finance, to ensure Projects which enter the evaluation stage have the appropriate support to reach operation.

Projects will be asked to show information about their financing plan and the status of discussions with financiers (if relevant). This could be shown, for example, by a letter from the board of equity partners/funder which sets out their intention to commit to financing the project, letters of support from financiers and/or confirmation of the ability to fund from existing liquidity.

If your project relies on RTFO support from the Department for Transport, you must upload evidence that confirms that the portion of fuel being claimed against the RTFO may be eligible for RTFO support. At a minimum, this must be documentation outlining how the project meets the requirements of the RTFO, but can also include evidence of early engagement with the RTFO Administrator regarding the project (e.g. email chains) or a provisional letter from the RTFO Administrator outlining that the project should, in-principle, be eligible for an application for renewable transport fuel certificates (RTFCs) depending on the stage of the project.

3.6 Evaluation criteria

3.6.1 Overview of the evaluation process

This section sets out the evaluation criteria which will be used in assessing Projects that pass the eligibility check for HAR2. Before moving to the evaluation of deliverability, DESNZ will apply a pass/fail threshold in respect of projects' maturity level.

The objective of the evaluation process is to select which Projects will go through to the Agreeing an Offer stage to potentially receive revenue support via the HPBM. Projects going through to this stage will need to demonstrate through the evaluation process that they:

- Are commercially and technically viable
- Provide value for money (VfM)³⁶
- Are aligned to the strategic objectives of this allocation round.

Projects will be evaluated against four weighted evaluation criteria set out in the table below. Projects will be allocated a score against each of the criteria according to their weightings, based on the assessment of relevant evidence against the scoring tables outlined below. Projects' overall scores will be calculated using their finalised scores against each criterion, which will then be combined according to their associated weightings.

Projects that pass the eligibility check and meet the threshold in respect of the projects' maturity level will first be assessed against the deliverability evaluation criterion and must achieve a minimum score of three out of five, before moving on to full assessment against the

³⁶ This includes being configured in a way that is most efficient and provides VfM.

remaining three evaluation criteria. Those which fail to meet the minimum score for deliverability or for one of its sub-criteria will be removed from further evaluation against the other criteria and will not progress any further in their application to HAR2. Please see Section 3.6.2 for further details on the deliverability evaluation criterion.

If an eligible project can demonstrate a strong performance against each of these criteria, it would build confidence that the project has the potential to offer good value for money.

HAR2 evaluation criteria

Criteria	Definition	Weighting
Deliverability	The project’s capability and capacity to deliver successfully by the selected commercial operation date.	40%
Costs	Whether the Project will deliver cost-effective hydrogen.	30%
Economic Benefits and Supply Chain Development	The contribution the hydrogen plant will make to the economy and the development of hydrogen supply chains.	20%
Wider Electricity System Benefits	<p>Additionality: Whether a project’s low carbon electricity source is met by new low carbon generation and does not divert low carbon electricity from other users to avoid negative impacts on wider decarbonisation.</p> <p>Network constraints: Whether projects are located in areas that will help alleviate electricity network constraints.</p>	10%

As set out in Section 3.5 on HAR2 eligibility criteria, volumes sold to non-qualifying offtakers will not be eligible for ongoing HPBM financial support. Projects applying to this allocation round must supply qualifying volumes to a proportion of their offtakers.

Non-qualifying offtakers are as follows:

- Hydrogen blending into the gas distribution and/or transmission network
- Export
- Risk-taking intermediaries

Projects should clearly state the volumes of qualifying and non-qualifying offtakers within their application and provide evidence for each.

Given the uncertainties around the use of blending into the gas grid as an offtaker for projects in HAR2, Government will exclude all offtake intended for blending from assessment. These volumes will not be taken into account when scores are allocated under each evaluation criterion.

Other non-qualifying offtakers will be considered throughout the evaluation process where relevant. However, these non-qualifying offtakers are likely to score less favourably than qualifying offtakers under the Deliverability criterion (which is weighted at 40%), and therefore maximising qualifying offtakers will be preferable. For example, Government is likely to have less visibility and confidence over volumes intended for export or to be sold to risk-taking intermediaries. Also, where the viability of offtakers is dependent upon support being provided by the RTFO, the applicant should provide evidence of how they would mitigate the effects to provide assessors with confidence in the project plan and viability.

3.6.2 Deliverability

The aim of the deliverability criterion is to evaluate the credibility of a Project's delivery plan and determine the level of confidence in a Project's ability to achieve its stated Commercial Operational Date. This supports the Government's strategic objective to deploy up to 10GW of low carbon hydrogen production capacity by 2030.

The Deliverability criterion will evaluate credibility by assessing:

- The Project's organisational capability, including track record, capability, and credibility to deliver and operate the proposed Project as stated, including funding capability.
- The Project's current level of development progress made to date, and their plans to complete all future work required to meet the stated COD. This will include:
 - Project Deliverability - including schedule, planning and consents, and supply chain and procurement plan.
 - Technical Deliverability – including the robustness of the technical design, credibility of the offtaker(s) plans and the required electricity and feedstock arrangements.

In assessing this criterion, Projects will be credited for providing clear, concise, and credible plans, supported by evidence for each of the sub-sections below. Each sub-section will be assessed to provide an aggregated score for the Deliverability criterion.

Organisational Capability

- The organisation's previous track record, credibility, and capability to deliver and operate the hydrogen production plant, or comparable energy projects; including any relevant consortium partners.

- The project organisational structure and how various departments, any subsidiaries, and any partner organisations, involved in the building, ownership, and operation of the hydrogen production facility, will interact with each other.
- Ability of the Project organisation(s) to access the proper level of resource and skills necessary to deliver and operate the hydrogen production plant. Specifically, demonstration of the Project's organisation(s) competence to manage and coordinate a project of this scale and complexity, and demonstration that the individuals within the Project organisation(s) have the relevant competence and experience to manage and contribute to the development of a project of this scale and complexity.
- The Project's organisation(s) capability and proposed plans to secure any funding required to deliver the project.

Project Deliverability

Delivery Schedule

- The Project's schedule, including details on all activities, with reasonable durations scheduled for both the development and construction phases. It should include all project milestones (i.e. planning permissions, procuring suppliers, and long lead items, engineering, construction and commissioning), critical path activities and contingency/float to facilitate the Project achieving COD. Evidence that the project risks have been identified, factored into the Project's schedule and effectively managed should be provided.
- The schedule shall include all interdependencies, including internal governance (e.g. FID), application stages (i.e. shortlisting, contract award), as well as plans for all proposed offtakers required to accept the proposed hydrogen volumes, feedstock arrangements (including grid connections), and transport and storage requirements.
- Schedule narrative to explain the progress to date against the stated Project schedule, with evidence to demonstrate that the Project and its proposed offtakers, suppliers and feedstock providers are on track to meet the COD.

Planning and Consents

- Detailed description of the Project's planning, consenting, and permitting requirements, evidence of the current progress towards achieving these, and details of the planned activities.
- Details of any land agreements (including purchase and lease agreements) required to construct and operate the facility, including progress made to date and outstanding work required to secure the agreements required.

Supply Chain

- Details of the Project's procurement and contracting strategy, demonstrating an understanding of all the goods and services required for the development, construction, and operation of the hydrogen production plant. This includes consideration of supply chain risks (e.g. electrolyser performance/failure) in your procurement strategy.

- Evidence that the capability and capacity of the supply chain to deliver the required goods and services is understood and factored into the Project's development plan (i.e. supply chain constraints and mitigation measures).
- Evidence of engagement with key suppliers for all major plant and equipment and professional and delivery services, including a detailed description of future plans to obtain key contracts with core suppliers and services that will be relied upon to achieve COD.

Technical Deliverability

Offtaker Development Plans and Agreements

- Details of the proposed offtaker(s) requirements including; end use, location relative to the facility, hydrogen compression, purity, transport and storage requirements and forecasted production vs demand requirements.
- Current status of securing an agreement with each offtaker, including evidence of progress towards an agreement with offtaker(s) (e.g. Letter of Support)
- Current status of offtaker(s) development and a detailed description of planned outstanding works including any risks or dependencies which should be managed to avoid delays to the Project COD
- Offtaker assessment will be based on the level of progress made to identify and secure offtaker demand for the planned hydrogen production volumes. This will include; evidence of offtake demand provided, the volume committed to, and the level of commitment expected for the project's current development stage.
- At least one of the proposed, viable offtakers must be a qualifying offtaker to meet HAR2 eligibility requirements (as set out in eligibility section 3.5.6)

Energy and Feedstock Plans

- Details on all core energy and feedstock requirements essential for the Project's operation (i.e. electricity, water, biomass, natural gas). This should include details of current progress and future plans to finalise all logistic arrangements (supply volumes, locations, connections, delivery requirements), as well as all commercial and contractual arrangements.
- Details on electrical capacity and grid connection requirements for the Project, including; planned physical grid and / or direct wire connection(s), capacity available, development stage, and status of securing the electricity connection(s). This should include all planned future works, risk mitigation strategies, and a robust plan for how this will be delivered by COD.

Production Facility Design

- Details on the proposed hydrogen production facility design, the role of any hydrogen distribution and storage, and operating philosophy, including how these elements are being optimised and any consideration of operational risks.

- Details of each waste, residue and co-product material expected to be produced from the facility and plans for the storage, disposal, usage, sequestration and offtake of each material.
- Clear evidence of the current design status of the hydrogen production plant facility through engineering drawings and documents. These can include:
 - Design intent documentation
 - Feasibility Studies
 - Site layout
 - Equipment specifications
 - Piping and Instrumentation Diagrams
 - Line diagrams
- Details of the Applicant's plan for completing all outstanding design work and the risks and dependencies being managed to avoid delays.

Government recognises that the level of commitment in place between an early-stage Project and its partners may vary depending on the Project's stage of development and planned delivery year. Any evidence of formal and informal agreements and discussions will therefore be evaluated against their expected level of development and future plans to meet their stated COD.

Note, shortlisted projects will be expected to progress and evidence they are at an advanced stage of FEED, be able to move forward with all the regulatory processes and consents needed to realise their Project and are able to satisfy the Conditions Precedent and Milestone Requirement set out in the LCHA. Please see Section 5 for more details on the Agreeing an Offer stage.

The Hydrogen Heating Trials as an offtaker

Government wants to ensure projects bidding into this round are able to support potential hydrogen heating trials in the event that this would be needed, but also that these projects have mitigated the deliverability risk of planning on the basis of an uncertain hydrogen offtaker.

Government will therefore consider evidence of progress towards an agreement to supply hydrogen to heating trials to be acceptable evidence of offtaker demand for those volumes of hydrogen for the purpose of the deliverability assessment. To score well under the Deliverability criteria these Projects will be required to:

- Account for the current uncertainties in their planning, such as by identifying credible contingency offtakers for the volumes of hydrogen intended for the heating trial.
- Have identified offtakers to accept the hydrogen beyond the lifetime of the heating trial.
- Otherwise satisfy the scoring requirements for the Deliverability criterion.

Deliverability minimum score

Projects that do not sufficiently demonstrate technically robust and credible development plans to deliver the Project by the proposed COD, and within the HAR2 delivery years, will not be able to score at, or above the minimum score threshold of three out of five for the overall score as well as each of the sub-criteria and will be removed from further evaluation against the other criteria and will not progress any further in their application to HAR2. This additional level of scrutiny is to ensure only viable Projects that have demonstrated a minimum level of credibility are considered and progressed through to the Agreeing an Offer stage.

Deliverability scoring framework

Deliverability will assess a Project’s delivery plan against the scoring framework set out below.

A score between one and five will be assigned using the scoring framework for each sub-criteria which hold an individual weighting that will contribute to the overall score out of five. To note, Projects will need to achieve a minimum score against each sub-criterion to pass. Assessors will evaluate the responses provided and the supporting evidence, to assign a final score.

The scoring framework for this criterion are defined as follows:

Score	Description
Low (1) Fail	<ul style="list-style-type: none"> • Little to no detail provided to support the stated development stage, or planned development activities. Unable to evaluate if the stated COD is realistic and achievable, and/or; • No evidence of engagement with supply chain, offtakers, electricity and feedstock suppliers, or little / no detail provided on the future development activities for supply chain, offtakers, electricity and feedstock suppliers. • Commercially & technically viable offtakers for the majority of the planned hydrogen production volumes have not been identified, including no commercially and technically viable qualifying offtaker(s), or; no evidence provided to demonstrate that there is sufficient demand that the site can feasibly supply. No evidence provided on how the project will engage and secure offtaker demand by COD. • No company track record or demonstratable previous experience and capability (organisation, individuals, or supply chain).

Score	Description
<p>Medium-Low (2) Fail</p>	<ul style="list-style-type: none"> • The Project delivery plan has limited detail on the current development progress and planned development activities required to reach COD. Many of the key milestones not identified, or lack detail, resulting in the stated COD being considered unachievable / unrealistic, with major areas of concern identified. • Insufficient evidence provided to support the stated current development plans, there are significant gaps in the evidence to be able to substantiate that sufficient development progress has been made. • Commercially & technically viable offtakers for the majority of the planned hydrogen production volumes have not been identified, including no commercially & technically viable qualifying offtaker(s), or; insufficient evidence provided to demonstrate that there is sufficient demand that the site can feasibly supply. Insufficient evidence provided on how the project will engage and secure offtaker demand by COD. • Poor / limited company track record, insufficient previous experience, and lack of demonstratable capability (organisation, individuals, or supply chain).
<p>Medium (3) Pass</p>	<ul style="list-style-type: none"> • The Project delivery plan is sufficiently developed, with most of the key milestones identified and detailed, supported by logical plans to complete the remaining development work. There are some gaps, however, a sufficient level of detail overall has been provided to have reasonable confidence that COD is achievable, with some areas of concern identified. • Evidence has been provided which lacks detail but does support the current stage of development and provides reasonable confidence that the future development activity planned can enable the stated COD to be achieved. • Commercially & technically viable offtakers for the majority of the planned hydrogen production volumes have been identified with at least one qualifying offtaker, or; sufficient evidence provided to demonstrate that there is sufficient demand for the planned production volumes which the site can feasibly supply. Sufficient evidence provided on how the project will engage and secure offtaker demand by COD. • Company has a sufficient track record, previous relatable experience and demonstratable capability (organisation, individuals, or supply chain).

Score	Description
<p>Medium-High (4) Pass</p>	<ul style="list-style-type: none"> • The Project delivery plan is clear, logical, and well detailed. The current level of development is well progressed relative to its planned COD. All key milestones are identified and detailed, supported by logical plans to complete the remaining development work, providing a good level of confidence that COD is achievable, with minor areas of concern identified. • Evidence provided demonstrates that the current development progress is robust for agreement with supply chain, offtakers, electricity and feedstock suppliers, which provides a good level of confidence that the project is on track to achieve COD. • Commercially & technically viable offtakers for the majority of the planned hydrogen production volumes has been identified with at least one qualifying offtaker and good evidence provided to demonstrate offtaker commitment. Realistic plans provided for how the project will secure offtaker demand by COD. • Good company track record, and proven reliable experience.
<p>High (5) Pass</p>	<ul style="list-style-type: none"> • The Project delivery plan is robust and comprehensive. The current level of development is considered advanced relative to its planned COD. The plan to complete all remaining development work is comprehensive, realistic and covers all expected activities, providing a high confidence that COD is achievable, with no areas of concern identified. • Strong evidence provided to support the Project's current development stage in relation to offtakers, electricity, feedstock, and equipment suppliers. • Commercially & technically viable offtakers for the majority of the planned hydrogen production volumes has been identified with at least one qualifying offtaker and strong evidence provided to demonstrate offtaker commitment. Comprehensive plans provided for how the project will secure offtaker demand by COD. • Company has an extensive/strong proven track record and demonstrable experience/capability.

Submission requirements

Please note further information, including on any word limits and formatting requirements, will be included within the Application Form and Annex A.

1. Completion of Section 5 Deliverability in the Application Form.
2. Completion of Annex A: Project datasheet.

3. Provide mandatory supporting evidence, including:

- Project organisational chart
- Risk Register
- Project Schedule (Level 2 minimum, Level 3 preferred)
- Engagement with the delivery supply chain, long lead equipment suppliers, electricity supplier(s), feedstock supplier(s), planning authorities and utilities
- Offtaker commitment evidence (Head of Terms, Memorandum of Understanding, Letter of Intent)
- Design intent document (covering all relevant design elements essential to operation, including requirements on the facilities operating philosophy, transport and storage, feedstocks, waste, residue and co-product material, and offtaker requirements).

4. Provide further supporting evidence, examples could include:

Organisational capability

- Financing plan, including planned funding arrangements.
- CVs for key personnel
- Previous track record e.g. case studies

Project deliverability

- Planning, consenting and permitting strategy/plans
- Planning advice and stakeholder consultation or feedback
- Environmental studies, surveys and impact assessments
- Pre-planning feedback
- Procurement strategy/plan

Technical Deliverability

- Facility Design
- Pre-FEED/basis for design
- System design, functional design specification, site layout plans, line diagrams, equipment specifications
- The hydrogen production and demand forecast profile to demonstrate how daily hydrogen production matches the daily hydrogen demand.

Offtakers

- Offtaker(s) feasibility studies, site location plans and equipment layout drawings
- Offtaker agreements, including the demand profile.

Feedstocks & Electricity Supply

- Details of the power procurement strategy or methodology statement

- Details of the intended power purchase agreement (PPA/HoTs) that are being considered (including agreed duration, supply profiles, parties in agreement, quantity of power supply, location of power supply)
- Details of any feedstock purchase agreement (e.g. HoTs) that are being considered (including agreed duration, parties in agreement, quantity of supply, location of supply)
- DNO engagement on grid capacity and reinforcement requirements including connection offer/acceptance.

3.6.3 Cost

The aim of the cost criterion is to ensure that projects funded through the second hydrogen allocation round are cost-effective and represent value for money to HMG. The purposes of this are twofold:

- To ensure the subsidy is minimised.
- To drive down the costs of hydrogen production, supporting the long-term development of the hydrogen economy.

To assess the cost criterion, projects will be required to complete Annex A, which asks for data on the project's expected CAPEX, non-electricity/fuel OPEX, electricity and fuel costs and production volumes. Within the annex, projects will also be required to provide a cost class for each CAPEX cost estimate based on The Association for the Advancement of Cost Engineering (AACE)'s cost estimate classification system³⁷, and an estimated cost certainty range for non-electricity/fuel OPEX. These classifications and cost certainty ranges should reflect how developed the cost estimate is and the remaining uncertainty a project has around a given cost. Projects will also be required to provide supporting information to justify how they have derived each of their cost and production estimates, including any evidence, assumptions and calculations underpinning these estimates.

Certain costs associated with the production of hydrogen are ineligible for support under the Hydrogen Production Business Model (HPBM) and will therefore be automatically excluded from the Strike Price. Projects must not include in their datasheet (Annex A) any costs which are ineligible for support under the HPBM. These include:

- OPEX associated with operating and maintaining hydrogen transport infrastructure (such as pipelines or tube trailers)
- Services costs incurred prior to contract award (e.g. pre-FEED, other DEVEX)
- Indirect and direct taxes and duties, including, but not limited to:
 - VAT

³⁷ Please see 17R-97: Cost Estimate Classification System for general classification principles and 18R-97: Applied in Engineering, Procurement, and Construction for the Process Industries for further detail. <https://www.pathlms.com/aace/courses/2928>

- Green levies on electricity (e.g. Renewables Obligation, Feed-In Tariffs, Contracts for Difference, etc.)
- Business rates
- Import duties on imported materials and equipment.

Full details on eligible and ineligible costs can be found in the draft HPBM heads of terms³⁸.

Government will use the data and supporting evidence submitted by applicants to assess the robustness of the cost estimates and, where necessary, will make adjustments to account for any remaining uncertainty or lack of evidence provided to support cost estimates. Projects are therefore encouraged to provide as accurate and robust information as possible, as the credibility of the figures provided and quality of supporting evidence will affect the score received by a project. This is to ensure projects do not score more highly by falsely understating their costs. Government will check cost data against information provided for the deliverability assessment to ensure evidence aligns and is substantiated. Please note, projects will be required to provide updated cost data at due diligence stage.

Cost scoring framework

Scores for this criterion will be allocated on a relative basis so that a project's score reflects its cost-effectiveness relative to other applicants, with projects assessed to be lower cost based on both the data and supporting evidence provided scoring more highly.

Submission requirements

1. Completion of Annex A: Project Datasheet.
2. Provide mandatory supporting evidence to support cost data inputs in Annex A. Examples could include:
 - Engineering studies (conceptual, pre-FEED, FEED etc)
 - Supplier quotations
 - Internal analysis and modelling
 - Independent studies.

3.6.4 Economic benefits and supply chain development

The aim of the economic benefits and supply chain development criterion is to assess the contribution of a project to the development of hydrogen supply chains and the wider economy, including in the UK.

This criterion will assess the potential contribution that the Project can make to the Government's objective of supporting clean, resilient, and sustainable economic growth. Projects should also demonstrate the extent to which they are thinking about supply chain

³⁸ [Low Carbon Hydrogen Production Business Model Heads of Terms](#)

resilience, engagement with new players/SMEs and how they plan to address skills challenges.

Economic benefits

To assess economic benefits, projects will be required to complete Annex A, which asks for a detailed breakdown of their spending on and sourcing of key components and services. Government will use this data to calculate the expected number of jobs supported and associated economic benefits generated by each project.

Economic benefits scoring framework

Scoring for the economic benefits criterion will be based on the economic benefits estimated to be generated by the jobs supported by a project. This will be evaluated using standard Green Book appraisal methods. Only jobs supported in the UK are in scope of the assessment. Scores for this criterion will be assigned on a relative basis so that a project's score reflects the scale of the economic benefits a project is expected to deliver relative to other applicants and relative to the project's size, with projects assessed to deliver greater economic benefits scoring more highly.

Supply chain development

Supply chain resilience

Recent events (the war in Ukraine, COVID-19 pandemic) have underlined the need to think about supply chain resilience, and the exposure projects may have to risks such as the use of forced labour or poor employment practices in supply chains, or the sudden unavailability of equipment, or problems accessing key materials in the construction phase and the operations phases. We will be assessing what processes Projects have in place or plan to have in place to mitigate risks to the supply chain and will require evidence that gives confidence that Projects have appropriate systems in place to deal with the risks outlined above.

New entrants and SMEs

New entrants and SMEs³⁹, wherever they are from, can help bring disruptive practices, ideas, and products to the supply chain. We will be assessing how Projects identify and promote new entrants into supply chains through their projects as well as removing barriers to new entrants. Projects will be required to provide evidence of engagement with new players and/or SMEs.

Skills

We will be considering how projects invest in the skills needed to support the accelerating deployment of hydrogen. In particular, the actions taken to ensure the right people have access to the growing range of opportunities, to ensure the sustainability of the sector's rapid growth. Projects will be required to describe the main skills gaps, shortages or barriers the

³⁹ The SME threshold should be linked to section 465 of the Companies Act i.e. whether a company satisfied two or more of: turnover of not more than £36 million; balance sheet total of not more than £18 million; not more than 250 employees.

Project is facing and the mains skills challenge the Project proposes to address through its lifetime.

Supply chain development scoring framework

Score	Description
Low (1)	<ul style="list-style-type: none"> • The Project submission gives no or little confidence of its approach to supply chain resilience by providing no or only minimal evidence. • No or minimal evidence of considering and engaging with new entrants and/ or SMEs. • No or superficial description of skills gaps and how the project proposes to address them.
Medium-Low (2)	<ul style="list-style-type: none"> • The Project submission gives limited confidence of its approach to supply chain resilience by providing limited levels of evidence. • Limited evidence of considering and engaging with new entrants and/ or SMEs. • For its scale, project provides limited description of skills gaps and how it proposes to address them.
Medium (3)	<ul style="list-style-type: none"> • The Project submission demonstrates a reasonable level of confidence of its approach to supply chain resilience by providing a range of supporting evidence. • Evidence of early engagement to bring in new players and/ or SMEs. • For its scale, project provides reasonable and credible description of skills gaps and how it proposes to address them.
Medium-High (4)	<ul style="list-style-type: none"> • The Project submission demonstrates a good level of confidence of its approach to supply chain resilience by providing a good level of supporting evidence. • Demonstrates good evidence of advanced and sustained engagement to bring in new players and/or SMEs. For any tenders issued where new entrants and/ or SMEs were not selected or invited good reasons have been supplied. • For its scale, project provides a good and credible description of skills gaps and how it proposes to address them.
High (5)	<ul style="list-style-type: none"> • The Project submission demonstrates a high or very high level confidence of its approach to supply chain resilience by providing comprehensive and highly credible supporting evidence throughout. • Demonstrates new player and/ or SME involvement on the project, and/or, where relevant, provides sensible rationales for not inviting new entrants and/ or SMEs for some/all aspects. • For its scale, a comprehensive credible description of skills gaps and how the project proposes to address them is provided.

Submission requirements

1. Completion of Section 7 economic benefits and supply chain development in the Application Form.
2. Completion of Annex A: Project Datasheet.
3. Provide supplementary evidence. Examples could include:
 - Supply Chain Risk Register
 - Information on supply chain events or involvement in training programmes

3.6.5 Wider electricity system benefits

The aim of the wider electricity system benefits criterion is to assess the electricity system benefits provided by hydrogen production facilities. These include:

- Locating optimally on the system to help reduce network constraints (and therefore constraint costs funded by consumer bills);
- Configuring optimally to use excess low carbon electricity that would be otherwise curtailed (increasing utilisation of renewables and improving system efficiency); and
- Aiding power sector decarbonisation by providing additional generation to the electricity system.

This criterion will assess the contribution the Project can make to the Government's objectives of decarbonising the power sector by 2035 and managing the challenges associated with network constraints as we transition to net zero. Projects will be assessed against their overall contribution to these aims, across two sub-criteria. Scores across both sub-criteria will be combined to give a total system benefits score.

Please note, this evaluation criterion is scored from 0-5 so Projects who do not demonstrate any benefits to the wider electricity system will not receive a score for this criterion.

Additionality of electricity input source

Projects will be assessed against their proposed electricity input source. We understand demonstrating additionality of electricity sources may not be achievable for some projects, and therefore this is not a mandatory requirement to apply to this allocation round. One or more of the below principles of additional electricity must be proven to meet our definition of additionality. These principles are all considered 'additional' and therefore will be given equal weighting;

1. New purpose-built assets - Electricity provided by new/recently built low carbon generation assets, built (or partially built) without securing a government support contract (e.g. RO/CfD). Projects that can demonstrate hydrogen production was a decisive factor in the generation asset being built will score most favourably.

2. Excess electricity that would otherwise have been curtailed from new or existing assets - Excess electricity which would have led to curtailment if not consumed by the hydrogen producer. This may be sourced via co-location private wire or through the grid, for example via participation in the balancing mechanism, as defined in the Low Carbon Hydrogen Standard⁴⁰, if the electricity consumption by a Hydrogen Production Facility will reduce the need for electricity generators to curtail their Output.

3. Extension of the life of existing assets - Electricity provided by low carbon assets that are life extended to facilitate (fully or partly) hydrogen production (where hydrogen production can be evidenced to have been a decisive factor in life extension).

4. Recommissioned assets - Electricity provided by low carbon assets that recommission, (where hydrogen production can be evidenced to have been a decisive factor in recommissioning).

Projects will be scored on: i) percentage of the facility's overall electricity demand being supplied by additional sources; and ii) the quality of the evidence to prove this additional electricity will be delivered to the site. This scoring applies across all hydrogen production technologies eligible for HAR2.

Electricity network constraints

We will score projects based on the impact of their location on the electricity system. Projects that locate behind common network constraints and close to renewable generation will score most highly, whilst projects that locate in front of network constraints and close to large centres of electricity demand will score lowest under this criterion. DESNZ has worked with National Grid ESO to develop the below GB map (Figure 1) based on estimated curtailed electricity volumes from constraints analysis undertaken on the output of the Network Options Assessment 21/22 Refresh, using the Future Energy Scenarios for each zone between 2023-2042. GB regions will be scored proportionately to the amount of curtailed electricity in each region, so constrained regions will score much more favourably than unconstrained regions on location. This map may be updated when data from the Transitional Centralised Strategic Network Plan by National Grid ESO is available. However, for HAR2, projects will be assessed against the map included in this document. Northern Ireland based projects will be scored at a median value for network constraints (comparative to other project scores), recognising that the Northern Ireland grid is separate (although interconnected) to GB, and therefore constraint challenges and mitigations are unique to the Northern Ireland electricity grid. In addition, modelling carried out by the System Operator for Northern Ireland (SONI) suggests levels of curtailment due to network constraints in Northern Ireland are higher than in England and Wales, but lower than in Scotland⁴¹. This further supports that a median score is appropriate for projects based in Northern Ireland.

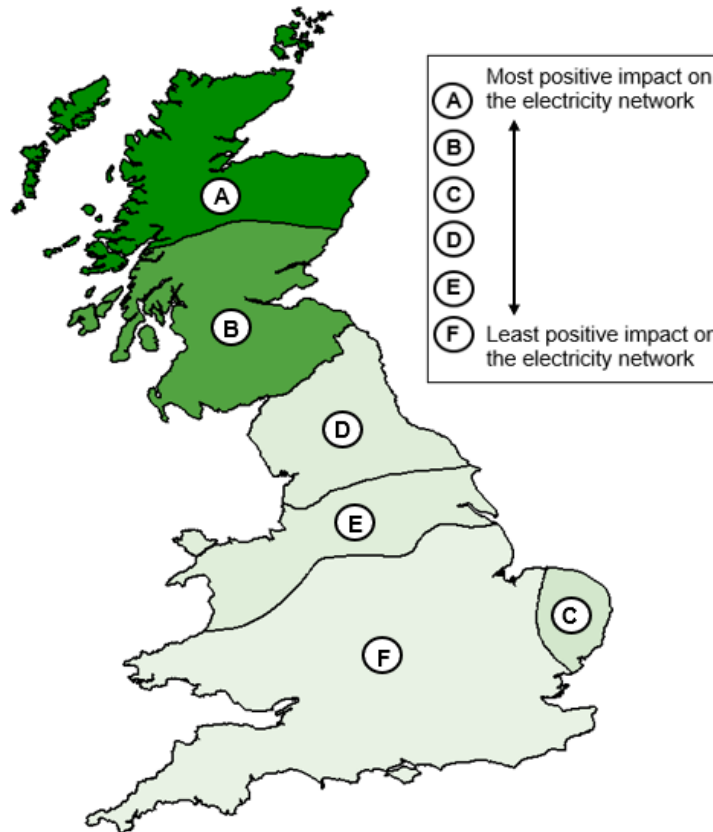
Non-grid connected projects will be scored at a median value for network constraints location, in recognition they neither improve network constraints nor make them worse. Non-electrolytic

⁴⁰ [UK Low Carbon Hydrogen Standard, Version 3, December 2023: guidance on greenhouse gas emissions and sustainability criteria](#)

⁴¹ https://www.soni.ltd.uk/media/documents/20231012b_NI-Constraints_2023_Final-Report_v1.pdf

projects will be scored at a median value for location, recognising that non-electrolytic projects have different siting considerations to electrolysers, so should not be penalised nor overly incentivised based on location relative to network constraints.

Figure 1: Impact of the location of low carbon hydrogen production on the electricity system in Great Britain



Map published in 'Market Engagement on the second Hydrogen Allocation Round', May 2023

Wider electricity system benefits scoring framework

Score	Description
No score (0)	<ul style="list-style-type: none"> No demonstration of providing system benefits. And / or located in a region with a negative impact on the electricity network.
Low (1)	<ul style="list-style-type: none"> Minimal demonstration of providing system benefits. For example, may have some limited additionality evidence regarding future plans. And / or may be located in one of the regions with a less positive impact on the electricity network.
Medium-Low (2)	<ul style="list-style-type: none"> Some demonstration of providing system benefits. For example, may have a % of additional electricity input sources e.g. up to 30% (well evidenced). And / or may be located in one of the regions with a less positive or somewhat positive impact on the electricity network.

Medium (3)	<ul style="list-style-type: none"> • Reasonable demonstration of providing system benefits. • For example, may have a good portion of electricity input sourced from additional generation e.g. up to 60% (well evidenced). • And / or may be located in one of the regions with a somewhat positive or positive impact on the electricity network.
Medium-High (4)	<ul style="list-style-type: none"> • Good demonstration of providing system benefits. • For example, may have a good portion of electricity input sourced from additional generation e.g. up to 100% (well evidenced). • And will be located in one of the regions with a positive impact on the electricity network.
High (5)	<ul style="list-style-type: none"> • Excellent demonstration of providing system benefits. • For example, will have a full portion of electricity input sourced from additional generation - 100% (well evidenced). • And will be located in the regions with the most positive impact on the electricity network.

Submission requirements

1. Completion of Section 8 Wider electricity system benefits in the Application Form.
2. Completion of Annex A: Project Datasheet.
3. Provide supporting evidence to support any additionality claims, for example:
 - Indicative PPAs with specific generators
 - A breakdown of % of additionality electricity from generation sources
 - Schedules for delivery of generation assets being claimed as additional
 - Data on curtailment volumes for specific generation assets, and / or evidence of ability to operate in the balancing mechanism to use excess electricity.

3.6.5 Supplementary questions

Projects will be asked to provide supplementary information in the Project Application Form and Project Datasheet Annex which will not be scored at the evaluation stage but will be taken into account during the value for money assessment at the Agreeing an Offer stage. Receiving this information up front at application stage will help to streamline the Agreeing an Offer stage. The data requested includes information on the fuels displaced by each offtaker to determine the total emissions reduction of the project, which is requested in the 'Offtaker Details' tab of the Project Datasheet (Annex A).

Projects will also be asked to provide details of any future plans to expand their hydrogen production facility. This is a non-scored, non-mandatory question and information will be used internally by DESNZ to help inform policy development in the future.

Section 4: Shortlisting

After the evaluation process, Projects will be ranked by total Project score from lowest to highest. Government will then longlist Projects for further consideration on the basis of their ranking and identify a shortlist of the highest-ranking Projects with regard to the bounds of its affordability constraint, considering the need to drive competitive tension and accounting for Projects potentially leaving the process or the Agreeing an Offer stage breaking down.

Government will then step back to consider how the shortlist of projects perform in combination, to consider the appropriate portfolio of low carbon hydrogen projects. Government is looking to fund a portfolio of projects; to do this, government may adopt a portfolio approach which is intended to make sure this round has a spread of projects that meet the allocation round's objectives, balanced across the relevant variables. In the course of this process, evaluation rankings will remain the key determinant of which Projects are shortlisted, but a lower ranking Project on the longlist may replace a higher ranking one on the shortlist in specific circumstances where this better achieves a balanced portfolio of projects, as set out below. As such, Government reserves the right at its absolute discretion to limit the number of projects which will be shortlisted to participate in the next stage.

Portfolio factors may be used to select the shortlist of projects going through to due diligence and the Agreeing an Offer stage (see Section 5) when in limited circumstances the allocation round is oversubscribed, and there is considered to be an imbalance in the overall portfolio, as set out in more detail below. Government encourages all eligible projects to apply regardless of the portfolio factors, in light of its increased ambitions, including its hope to have up to 1GW of electrolytic projects in construction or operation by 2025.

Government may consider the following portfolio factors:

- Location – government recognises the role that HAR2 can play in ensuring low carbon hydrogen production across the UK and associated economic benefits. Whilst government understands there may be value in having clusters of projects in the early stages of the hydrogen market, Government may use location-based portfolio factors to help ensure projects are not all located in a single country or region, to ensure these benefits are spread across the UK.

Imbalance Government would aim to redress: all projects are concentrated in one or very few regional areas.

- Project size (MW output) – this allocation round aims to support projects to deploy at scale at the earliest opportunity, advancing Government's ambition to deploy up to 10GW of low carbon hydrogen production capacity by 2030 and to do so at affordable costs by harnessing economies of scale. Government may therefore use a project size portfolio factor to ensure at least some larger scale projects are taken through to the Agreeing an Offer stage.

Imbalance Government would aim to redress: the portfolio has no or very few large projects.

- Diversity of technology type, end use and electricity source/operating model⁴² – HAR2 aims to kickstart the hydrogen economy in the UK, and in doing so it will deliver important learnings to the market and government. However, Government recognises that to achieve these aims, it may be necessary to take steps to address excessive risk concentration or homogeneity that may arise from a portfolio constructed only of the highest scoring standalone projects. In doing so, Government's intent is to determine a shortlist of projects which is sufficiently diverse and resilient as to represent a lower risk portfolio with a higher probability of delivering upon our ambitions and aims, than that which may necessarily be derived from a portfolio comprised solely of the highest scoring individual projects.

Imbalances which (if arising) Government may seek to address include limited diversity of offtake, energy source, or production technology type, or limited resilience to supply/demand interruptions (e.g. lack of storage or grid back up).

Government may also conduct integration checks at the shortlisting stage, to consider if the projects are additional to one another. Due to the lack of an established low carbon hydrogen market, limited hydrogen infrastructure and a constrained low carbon electricity market, it is likely that there could be multiple applicants planning on using the same electricity or water source and/or supplying hydrogen to the same offtakers. Integration checks may be used to ensure projects selected to enter into the Agreeing an Offer stage are additional to each other. In this case, being additional means checking that where multiple projects are dependent on the same feedstock, infrastructure or end users these can support the combined hydrogen volumes from the individual projects. These checks may include consideration of:

- Offtake: e.g. that total hydrogen supply to a single offtaker is not significantly higher than the offtaker needs.
- Electricity supply: The same renewable energy source does not supply multiple projects, adding up to a significantly higher electricity need than what is produced.
- "Sanity checks": e.g. that projects will not represent an undue burden on the grid or on the water supply, and that there are no conflicts with planned CCUS-enabled projects being supported through the Cluster Sequencing process.

Where a conflict is identified between multiple projects at this stage, Government may choose to apply an integration score to adjust projects' overall scores. It is possible that an application that received lower assessors' scores may be progressed to the Agreeing an Offer stage over others following integration checks. This integration score will take into account several factors including:

- Whether offtake or supply could accommodate each project

⁴² In this context, the term operating model is used to describe a projects' power supply arrangements. For example, a distinction in operating model would be between projects combining intermittent production with constant supply, or intermittent production with intermittent supply.

- The maturity level of projects' agreements with relevant third parties around e.g. offtake or electricity supply
- Credibility of any contingency plans
- The projects' overall scores at assessment

We intend to inform Projects whether they were successful or not after the shortlisting stage in Autumn 2024. Being shortlisted does not guarantee funding.

Section 5: Agreeing an Offer and Award of Contracts

5.1 Overview

Following shortlisting, shortlisted projects will take part in a process to agree an offer of HPBM support. This process includes due diligence, a VfM assessment and engagement with Government with the aim to agree an offer of support through a Low Carbon Hydrogen Agreement (LCHA). Entering this phase of the process does not mean that any funding or contract will be awarded.

Projects are reminded that Government intends to apply lessons learned from HAR1 to develop the processes applicable to the HAR2 Agreeing an Offer stage. Therefore, Government reserves the right to make changes to the Agreeing an Offer processes described in this document. Details of the processes and applicable timelines will be communicated in the invitation to participate in the Agreeing an Offer stage. Entering this phase of the process does not mean that any funding or contract will be awarded. Government reserves the right to pause or terminate this process at any time.

The approach to the Agreeing an Offer stage aims to enable the Government to meet the strategic objective of accelerating the deployment at scale of hydrogen production projects.

Government reserves the right:

- To invite a number of Projects to participate in this stage representing a total subsidy spending in excess of the funding envelope, in order to maintain competitive tension throughout the process;
- To invite projects to a pathway to the Agreeing an Offer stage as determined solely by the Government; and
- To request additional information from Projects, and other parties involved in the project such as delivery partners and offtakers, on all aspects of their Submissions, including with respect to technical, legal, financial and commercial matters.

The decision in relation to how many Projects will be invited to participate in this stage will be taken by reference to:

- Government's affordability, value for money, balance sheet and subsidy control constraints;
- The number of Projects that have applied;
- Alignment with HAR2 strategic objectives and portfolio factors; and
- Integration checks.

5.2 Structure of the Agreeing an Offer stage

The Government reserves the right to subdivide the shortlist of projects into two or more groups, each group entering a separate pathway to agreeing an offer, depending on:

- The number and the makeup of the portfolio of shortlisted projects, with consideration of factors including but not limited to the size (capacity or hydrogen production) of the projects, COD, the cost, the deliverability score, the project's ranking at the evaluation stage, and the operating and business models; and
- Whether the choice of pathways would enable the Government to meet the strategic objective of enabling projects to deploy at scale.

The pathways to the Agreeing an Offer stage include engagement with Government, and due diligence, but they would differ according to:

- The level of engagement with Government;
- The bidding process, including the path to the Best and Final Offer (BAFO) submissions; and
- How the offer of support will be set.

The standard terms and conditions of the LCHA will not be negotiable on a per-project basis, with a standard set of terms applying. This is intended to provide a fair, transparent foundation for Agreeing an Offer. The project-specific information (for example relating to target commissioning date, capacity and strike price) will be set out in the LCHA Front End Agreement for each successful project.

Under this process, Government reserves the right:

- To adopt different timetables for the conduct of due diligence and the Agreeing an Offer stage as well as varying the intensity of engagement across different pathways;
- To have a different scope of the Agreeing an Offer stage between the different pathways. Further details on the scope of any Agreeing an Offer process will be communicated in the invitation to participate in the Agreeing an Offer stage;
- To conduct due diligence and agree an offer with Projects allocated to one pathway ahead of conducting due diligence and agreeing an offer with Projects allocated to another pathway;
- To move Projects between groups and pathways if there are changes in circumstances;
- To apply different methodologies under the different pathways to set the strike price and other negotiable areas, and for the different pathways to have separate funding envelopes; and,
- To award contracts to projects in different groups/pathways at different times, to support projects to deploy at the earliest opportunity.

Government will issue a formal invitation to enter the process of the Agreeing an Offer stage to the relevant Projects. Any decision to award support at any stage of this process will only be

made subject to Government being comfortable with the application of subsidy control requirements, any balance sheet implications and the project representing value for money and being deliverable. That invitation will set out:

- The relevant pathway to the Agreeing an Offer stage selected for the Project, including a description of the Agreeing an Offer process, if the Government sets up different pathways to the Agreeing an Offer stage;
- Instructions and information in relation to the conduct of any discussions that may be carried out between Government and Projects;
- Details of any initial submission requirements, including any additional technical, legal, financial and commercial information Projects will be required to provide to support their submissions;
- Instructions in relation to the submission of that further information; and
- Any other relevant information about the Agreeing an Offer stage.

A significant amount of collaboration and coordination is expected during this period from all applicants. In particular, the shortlisted Projects would be expected, amongst other things, to be able to:

- Demonstrate high confidence in the engineering and commercial proposal, for example, minimising contingencies, be at an advanced stage with their FEED, have agreements in place with main contractors and suppliers appropriate to the stage of project development and that they are committed to optimising the design of their Project;
- Move forward with all the regulatory processes and consents needed to realise their Project;
- Agree a programme of work through to contract award, taking account of government processes;
- Share new information across a wide range of issues, including the management of risk; and
- Respond to requests in a timely manner and in accordance to requested deadlines for information from Government as due diligence and value for money assessment commences.

5.3 Due diligence

During due diligence, shortlisted Projects will engage with DESNZ on a variety of technical, legal, financial, and commercial matters. DESNZ's intention is that this will involve further investigation of the applicants' Projects. Projects will be required to complete and submit a Request for Information (RFI) template in order for DESNZ to undertake due diligence activities. Throughout due diligence and continuing up to contract award Government will be considering and assessing value for money to ensure that a Project meets the minimum value for money requirements for government spending.

Government's key objectives during the due diligence stage are as follows but not limited to:

- to confirm and verify any aspect of the submission and to seek updated information from applicants as Projects develop and achieve important milestones; and
- to understand the overall value for money proposition of Projects.

5.4 Agreeing an Offer

The process of agreeing a support offer through the Low Carbon Hydrogen Agreement (LCHA) will be iterative. The process will be concluded by a request, from projects, for "BAFO Submissions". Government intends to close the Agreeing an Offer stage by seeking best and final offer submissions ("BAFO Submissions"), which will be evaluated in accordance with the criteria set out in the invitation to submit a BAFO Submission. Government reserves the right to have multiple rounds of Agreeing an Offer.

Government reserves the right to discontinue the Agreeing an Offer stage with any Project that does not accept the terms and conditions for submission as set out in the invitation to submit a BAFO.

A second integration check will be applied to ensure the final selection of Projects are additional and able to deploy. At this point we will also assess the extent to which the final portfolio of Projects aligns with HAR2 strategic objectives and delivers value for money as well as considering whether the portfolio factors should be applied in order to aid decision-making on which projects will receive contracts.

5.5 Contract Award

Following the agreement of BAFOs, successful Projects will receive a letter from DESNZ confirming agreement of their BAFO. Once agreement has been confirmed the next step would involve the Secretary of State issuing a direction to the counterparty to offer to contract with the Project, in accordance with section 66 of the Energy Act 2023 and the process set out in the Hydrogen Production Revenue Support (Directions, Eligibility and Counterparty) Regulations 2023.⁴³

Government will not be responsible for, nor make any commitment in respect of, costs incurred before the signature of any LCHA.

Government intends to announce the list of Projects it expects to provide financial support to. If multiple pathways are used to award support, Government may announce the list of successful Projects separately, and on different dates.

⁴³ The regulations are subject to Parliament approval and were laid in draft on 8 November 2023 - <https://www.legislation.gov.uk/ukdsi/2023/9780348253474>

Any decision to award support will be subject to Government first satisfying itself as to compliance with relevant technical, legal, financial, commercial or policy requirements, including:

- Compliance with applicable subsidy control requirements;
- Any balance sheet requirements;
- Value for money requirements;
- Verification of compliance with the applicable eligibility requirements; and
- A further Integration Check and application of portfolio factors.

Any decision to award support under this process will also be subject to conditions being satisfied, including:

- Projects demonstrating sufficient progress towards satisfying any contractual requirements, such as Initial Conditions Precedents which must be fulfilled within 20 days post-signature (e.g. obtaining any necessary planning consents); and
- Projects agreeing final terms with Government appointed counterparty

Projects that were shortlisted following the evaluation stage but are not selected to join the Agreeing an Offer stage may be placed on a reserve list and invited at a later date to the Agreeing an Offer stage (e.g. if a project were to fall out of the process). In addition, any reserve list project is encouraged to consider applying to the next hydrogen allocation round, if eligible.

Section 6: Monitoring and evaluation

Monitoring and evaluation (M&E) is an essential part of policy development, enabling learning and accountability of Government interventions.

Monitoring data is either collected directly from stakeholders as part of an evaluation project (to capture perceptions and experiences) or is taken from existing, secondary sources. The latter includes data provided to the LCHA Counterparty as part of the reporting requirements set out within the LCHA. Both types of monitoring data (primary and secondary) are used to evaluate the effectiveness of the intervention and provide evidence to improve policies and inform decisions.

M&E is distinct from, though may use the same data as, audit and compliance monitoring undertaken by the LCHA Counterparty to ensure that producers comply with their contractual requirements (e.g. monitoring by the LCHA Counterparty to ensure that hydrogen volumes in receipt of funding are compliant with the LCHS).

Government will provide more detail on envisaged M&E activities in due course.

Annex A

Environmental signposting for innovative net zero technologies September 2023

If you are developing or implementing a hydrogen, Greenhouse Gas Removal (GGR), Carbon Capture, Utilisation and Storage (CCUS) innovation or bioenergy (biomass, biofuels, waste derived fuels) development project, we strongly encourage you to consider, as early as possible, the potential associated environmental impacts of your project. This consideration is needed at every stage of technology development to ensure that the risks to the environment and human health are adequately understood. The project should seek to design out and minimise environmental risks and maximise wider environmental co-benefits.

In England, the Environment Agency (EA) protects our air, land and water and enables a net zero nation that's resilient to climate change. We work with government, policy makers and developers to manage environmental risks at the earliest opportunity and help industries prepare for necessary regulation. We also aim to build public trust in our regulation of the key environmental risks. For contacts in devolved nations see below.

Environmental Principles

It is important to assess comprehensively what environmental risks could be associated with the technology you are testing, and how you can reduce those risks. We outline three environmental principles that summarise how you should approach this.

We are supportive of technologies and approaches that:

1. Consider environmental risks early and comprehensively. This includes:
 - a. Building environmental considerations into decision making at the earliest stage – not as an afterthought
 - b. Providing robust evidence that allows the environmental risks to be effectively managed and regulated, and which considers risks of deployment at commercial scale
 - c. Assessing all impacts from cradle-to-grave - including harvesting feedstocks & raw materials, decommissioning, and safe long-term recovery or disposal of waste
 - d. Engaging the public so they understand the risks and benefits

2. Minimise the impacts and risks to people and our environment – air, land and water. This includes:
 - a. Maximising decarbonisation and greenhouse gas reduction within safe environmental limits
 - b. Maximising resource, energy and water efficiency – wasted resources, energy and water represent harm without benefits
 - c. Maximising co-benefits for people and the environment
3. Are fit for the future, including resilience to the impacts of climate change

Environmental Regulation

We are supportive of innovation and know that some of the technologies and approaches we'll need to achieve UK Net Zero by 2050 haven't yet been invented. We want to help innovators to design solutions to the climate emergency that are fit for the future and safe for people and wildlife. We also want to ensure that innovative technologies are subject to proportionate and risk-based regulation to provide the necessary level of environmental protection. This includes developing [Best Available Techniques](#) (BAT) for new technologies and updating pre-existing BAT guidance, to prevent or minimise their emissions and impacts on the environment.

Please read and follow our regulatory guidance relevant to your technologies, some of which are listed below. Please note that we 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 our pre-application advice service [here](#).

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

- In England, please contact: EnablingNetZero@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

Examples of guidance for specific Environment Agency regulation of relevance

Does your innovation project involve....		Regulations you may need to consider
	Planning Permission	<ul style="list-style-type: none"> • Environmental advice on planning proposals
	Getting an environmental permit	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • COMAH
Air	Carbon Capture and Storage	<ul style="list-style-type: none"> • Carbon Capture and Storage Best Available Techniques
	Hydrogen Production and Use	<ul style="list-style-type: none"> • Inorganic chemicals sector: additional guidance • Hydrogen production with carbon capture guidance for emerging techniques is available. • 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	<ul style="list-style-type: none"> • Gasification, liquefaction and refining installations: guidance
	Anaerobic digestion	<ul style="list-style-type: none"> • Regulation Anaerobic Digestion (biogas-info.co.uk)
	Emissions to air	<ul style="list-style-type: none"> • Air quality in planning • Emissions Trading Scheme
Land	Waste management (Think very carefully about potential waste status of each output and check guidance)	<ul style="list-style-type: none"> • 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

	Spreading waste/ materials to land (e.g. biochar, enhanced weathering)	<ul style="list-style-type: none"> • Landspreading guidance • Storing and treating waste to make biochar: LRWP 60 • Storing and spreading biochar to benefit land: LRWP 61
Water	Water abstraction	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • To Fresh Water and Sea water - engage with EA if novel, otherwise enhanced pre-application for Discharges to surface water and groundwater permit
	Farming	<ul style="list-style-type: none"> • Farming rules for water • Storing silage, slurry and agricultural fuel oil

Annex B

Multiple funds and partnerships have been established in the UK and EU to accelerate the growth of the hydrogen sector. Here are a few examples⁴⁴:

- Breakthrough Energy Catalyst is a partnership of companies, philanthropists and governments that provides low-cost equity, grants and product purchase commitments to low carbon infrastructure projects. Catalyst and the UK government announced a partnership to support commercial-scale projects in four sectors including clean hydrogen in October 2021.
- HydrogenOne Capital Growth Plc is a publicly listed fund specialising in clean hydrogen, democratising private equity for public shareholders. It was launched in 2021 through an initial public offering (IPO) on the London Stock Exchange (LSE) with mandate to invest for growth across the Organisation for Economic Cooperation and Development (OECD).
- HyCap is a private equity fund that invests across the UK hydrogen value chain. It is backed by a number of large industrial groups including JCB, Ballard, Northern Gas Network, Vedra Partners and Andrew Forest.
- Hy24 is a clean hydrogen infrastructure investment platform. It was created by Ardian and FiveT Hydrogen to accelerate hydrogen's potential for industrial and mobility uses via impact investments.
- The UK Infrastructure Bank (UKIB) is a government-owned policy bank, focussed on increasing infrastructure investment to help to tackle climate change and promote economic growth in the United Kingdom. The bank has identified low carbon hydrogen as one of its investment opportunities in its first strategic plan, published June 2022. It has £18 billion of private sector financial capacity and will provide corporate and project finance and invest across the capital structure, including senior debt, mezzanine, guarantees and equity.

⁴⁴ Please note this is provided for informational purposes only. This does not constitute investment advice and is not an endorsement or recommendation of any funds or their terms and conditions. Please also note that the information is correct as of December 2023, and may be subject to change without notice.

Annex C

The information contained in this HAR2 application guidance document relating to financing opportunities relating to the UKIB⁴⁵ may be considered a financial promotion.

This document is solely intended for, made to or directed at high net worth companies, investment professionals or any other persons to whom this communication may lawfully be communicated to within the UK (as per Article 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (“FPO”).

The content of this document has not been approved by an authorised person within the meaning of the Financial Services and Markets Act 2000 (“FSMA”).

Recipients of this document should obtain independent advice as considered appropriate by the recipient in relation to any financing opportunities referred to in this communication.

High net worth companies

A high net worth company is one of the following: (i) a company which has, or is in a group with a company which has, at least 20 members and share capital or net assets of £500,000, or fewer than 20 members but share capital or net assets of £5m, or (ii) an unincorporated association or partnership with net assets of £5m, or (iii) a trust with cash and investments in accordance with Article 49 of the FPO of at least £10m.

Investment professionals

The term investment professional is defined in Article 19 FPO and includes someone who is either: (i) an authorised person or exempt person within the meaning of the FSMA (provided the exempt person is exempt relation to the financing activities this communication refers to); or (ii) someone whose ordinary business activities involve that person in financing activities this communication refers to. It also includes governments and local authorities in the UK or elsewhere.

⁴⁵ UK Infrastructure Bank Limited (UKIB) is not a banking institution and does not operate as such. UKIB is exempt from the requirement to be authorised to do so under the Financial Services and Markets Act 2000 (Exemptions) Order 2001 and while UKIB may conduct regulated activities in the course of the provision of its services, UKIB is not authorised or regulated by the Prudential Regulation Authority (PRA) or the Financial Conduct Authority (FCA).

This publication is available from: www.gov.uk/government/publications/hydrogen-production-business-model-second-hydrogen-allocation-round

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