



Department for
Business, Energy
& Industrial Strategy

Hydrogen Business Model and Net Zero Hydrogen Fund: Electrolytic Allocation Round

Application Guidance Document

July 2022



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Contents

Contents

List of Acronyms	5
Definitions	6
Units	10
Section 1: Introduction and Key Information	11
1.1 Background and Introduction	11
1.2 Scope and Strategic Objectives	13
1.3 Other Government Support	14
1.4 Process Overview	15
1.4.1 The Entry Process	15
1.4.2 The Process for Submitted Applications	20
1.5 Timeline	24
1.6 General considerations	25
Section 2: General Submission Guidance	27
2.1 Final Submission Structure	27
2.2 Funding Rules	30
2.3 Eligibility and Assessment	31
2.4 Monitoring and evaluation	32
2.5 General Considerations for Submission	32
Section 3: Eligibility Criteria	34
3.1 Project plant located entirely in the United Kingdom and the Project Representative's business being registered in the UK.	35
3.2 Commercial Operational Date (COD) by end of 2025	35
3.3 Using core technology that has been tested in a Commercial Environment, Technology Readiness Level (TRL) 7 or more	36
3.4 New build hydrogen production facilities	37
3.5 Electrolytic hydrogen production facilities	38
3.6 Has identified at least one qualifying offtaker	38
3.7 Has identified an electrolyser supplier(s)	41
3.8 Minimum hydrogen production capacity of 5MW	41
3.9 Meets the requirements of the UK Low Carbon Hydrogen Standard (LCHS)	41

3.10 Demonstrated access to finance	42
Section 4: Evaluation Criteria	44
4.1 General considerations	44
4.2 Evaluation Criteria	47
4.2.1 Deliverability	47
4.2.2 Carbon Emissions and Environmental Factors	56
4.2.3 Costs	60
4.2.4 Economic Benefits	62
4.2.5 Market Development and Learning	65
4.2.6 Additionality of Electricity Source	68
4.2.7 Supplementary questions	70
4.3 Shortlisting projects	71
Section 5: Agreeing an Offer Stage and Award of Contracts	74
5.1 Outline	74
5.2 Objectives and Approach	75
5.3 Invitation to enter the Agreeing an Offer stage	76
5.4 Structure of the Agreeing an Offer stage	77
5.5 CAPEX grant/HBM strike price interaction	77
5.6 BAFO Submissions	78
5.7 Announcement of selection decision	78
Appendix A	80

List of Acronyms

Acronym	Definition
AACE	Association for the Advancement of Cost Engineering
ATEX	ATmospheres EXplosible
BAFO	Best and Final Offer
BEIS	Department for Business, Energy and Industrial Strategy
CAPEX	Capital Expenditure
CB	Carbon Budget
CCUS	Carbon Capture, Usage and Storage
CDM	Construction Design Management
CFD	Contract for Difference
CO ₂	Carbon Dioxide
CO _{2e}	CO ₂ equivalent
COD	Commercial Operation Date
COMAH	Control of Major Accident Hazards
CRL	Commercial Readiness Level
DCO	Development Consent Order
DEVEX	Development Expenditure
DNO	Distribution Network Operator
DPA	Data Protection Act 2018
EIR	Environmental Information Regulations 2004
EPC	Engineering, procurement and construction contract.
EoI	Expression of Interest
FDS	Functional Design Specification
FEED	Front End Engineering Design
FID	Final Investment Decision
FOIA	Freedom of Information Act
FuelEx	Fuel Expenditure
GB	Great Britain
GDPR	General Data Protection Regulation
GHG	Greenhouse Gas
GSMR	Gas Safety Management Regulations (1996)
GVA	Gross Value Added
GW	Gigawatt
HAZID	Hazard Identification Study
HAZOP	Hazard & Operability Study
HBM	Hydrogen Business Model
HEC	Hydrogen Emissions Calculator
HMG	Her Majesty's Government
HMT	Her Majesty's Treasury
HoTs	Heads of Terms
IDHRS	Industrial Decarbonisation and Hydrogen Revenue Support
IETF	Industrial Energy Transformation Fund
IFS	Industrial Fuel Switching

IPA	Infrastructure and Project's Authority
KKD	Key Knowledge Deliverable
LCCC	Low Carbon Contracts Company
LCHA	Low Carbon Hydrogen Agreement
LCHS	Low Carbon Hydrogen Standard
LCOH	Levelised Cost of Hydrogen
MJ/kg	Mega-joule per kilogram
MJ _{LHV}	Mega-joule per lower heating value
MOU	Memorandum of Understanding
MW	Megawatt
MWh	Megawatt hour
NZHF	Net Zero Hydrogen Fund
NZIP	Net Zero Innovation Portfolio
OFGEM	Office of Gas and Electricity Markets
OPEX	Operational Expenditure
P&ID	Piping and Instrumentation Diagram
PFD	Process Flow Diagrams
PPA	Purchase Power Agreement
RAMS	Risk Assessment Method Statement
RFI	Request for Information
RO	Renewables Obligation
RTFO	Renewable Transport Fuel Obligation
SICE	Science for Innovation, Climate and Energy
T&S	Transport and Storage
TRL	Technology Readiness Level
TRL7	Technology Readiness Level 7 - Integrated Pilot System Demonstrated
UKGI	United Kingdom Government Investments
VFM	Value for Money

Definitions

Term	Definition
Applicant or Applicant Organisation	The party / legal entity that intends to apply for support and will be taken through to the agreeing the offer stage if successful. This is expected to be the organisation responsible for Project development and must be a UK registered business.
Boundary Limit	The geographic boundaries identifying scope of works for process units or the Hydrogen Project.

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 UNFCCC, published by the IPCC in its Fourth Assessment Report (AR4).
Commercial Operation Date	<p>The date when the Project is commissioned, and hydrogen production begins.</p> <p><i>Note: This should not be taken to represent the definition of the COD that will be used within the business model.</i></p>
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 low carbon electricity.
Eligible volume	Hydrogen production volumes that are not ineligible, refer to ineligible volumes.
Hydrogen Production	<p>Electrolytic hydrogen volumes produced by the Project.</p> <p>New build hydrogen production facilities only: We are defining ‘new build production facilities’ as a newly constructed facility built for the specific purpose of producing hydrogen. This comprises the entirety of the production process.</p> <p>Electrolytic hydrogen production: ‘electrolytic hydrogen production’ refers to water electrolysis, where water is split into hydrogen and oxygen using electricity.</p>
Hydrogen Storage	The hydrogen storage requirements to ensure that the operating philosophy is achieved. This includes

	meeting offtaker demand and the Low Carbon Hydrogen Standard.
Ineligible offtakes and end use	<p>Volumes of hydrogen sold to ineligible offtakes and end uses not eligible for revenue support via the Hydrogen Business Model (HBM). This includes volumes intended for:</p> <ul style="list-style-type: none"> • Export • Blending into the gas grid • Risk taking intermediaries <p>See section 3.6 for further detail.</p>
Ineligible volumes	Volumes sold to ineligible offtakes and end uses.
Levelised Cost of Hydrogen	Calculation to consider overall cost of hydrogen produced and delivered.
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.
Offtaker	<p>In the context of the Electrolytic Allocation Round application process, an offtaker is both the end user of low carbon hydrogen and, where relevant, any intermediary party who may purchase and resell hydrogen to end users. 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.</p> <p>Reference should be made to eligible and ineligible volumes (MW output)</p>
Operating Model	In the context of the portfolio factor application process, the term operating model is used to

	<p>describe a Projects' 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 hydrogen supply.</p>
Operating Philosophy	<p>A description of how the operator plans to operate the equipment at the facility with guidance on the choices made in running the Project (e.g. manned or unmanned, kept on stand-by or shut down when not producing etc.).</p>
Project	<p>Project to develop, construct, commission, and operate a new build Electrolytic Hydrogen Production Project and where applicable, any associated hydrogen infrastructure that is expected to be supported through revenue support.</p>
Project Representative	<p>In the context for the Electrolytic Allocation Round, the Project Representative is the lead applicant, responsible for submitting the Expression of Interest form and the final submission.</p> <p>Expected to be from the primary or partner organisation responsible for Project development, which must be a legal entity.</p>
Qualifying Offtaker	<p>An offtaker receiving volumes of hydrogen that are eligible for HBM support. Refer to ineligible offtakes and end uses.</p>
Risk Taking Intermediaries	<p>For the purpose of determining eligibility, a risk-taking intermediary is defined as an entity which purchases hydrogen for the purpose of resale.</p>
Transport	<p>How the hydrogen will be transported from the Hydrogen Production facility to each offtaker.</p>

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 – High Heating Value (HHV) basis.
- Gas calorific value: MJ/kg – High Heating Value (HHV) basis.

Section 1: Introduction and Key Information

1.1 Background and Introduction

The Government has set a world-leading net zero target by 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 Revolution*¹, with commitments 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 is aiming to develop 5GW of low carbon hydrogen generation by 2030, and set out a range of measures to support this, including:

- the Hydrogen Business Model (HBM) – 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
- the Net Zero Hydrogen Fund (NZHF) – up to £240m of grant funding agreed to 2025 to support the upfront costs of developing and building low carbon hydrogen production projects.³

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 Strategy⁴, the Government announced that we have doubled our ambition to up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and Value for Money (VfM). At least half of this will come from electrolytic hydrogen, drawing on the scale up of UK offshore wind and other renewables and new nuclear.

Feedback from stakeholders has indicated that a significant number of electrolytic projects wish to apply for both revenue support via the HBM and capital support through the NZHF. In response, government have designed a joint HBM and NZHF Electrolytic Allocation Process that is streamlined for applicants and delivers best Value for Money (VfM) for government. Government have split the delivery of the NZHF into four distinct strands⁵:

- Strand 1: DEVEX (development expenditure) for Front End Engineering Design (FEED) studies and post FEED costs. Strand 1 will be up to 50% co-funding support.
- Strand 2: CAPEX (capital expenditure) for projects that do not require revenue support through the HBM. These are likely to be smaller electrolytic projects that are able to access revenue support through the Department for Transport's Renewable Transport Fuel Obligation (RTFO). Strand 2 will be up to 30% co-funding support.

¹ <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution>

² <https://www.gov.uk/government/consultations/design-of-a-business-model-for-low-carbon-hydrogen>

³ <https://www.gov.uk/government/consultations/designing-the-net-zero-hydrogen-fund>

⁴ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

⁵ Set out in our response to the Net Zero Hydrogen Fund consultation, published on Friday 8 April 2022 as part of the Hydrogen Investment Package.

- Strand 3: CAPEX for projects that require revenue support through the HBM and sit outside of the Phase 2 cluster sequencing process. As set out in this document, this first allocation round will be limited to electrolytic projects, and projects will be able to bid for up to 20% CAPEX support.
- Strand 4: CAPEX for Carbon Capture, Usage and Storage (CCUS)-enabled projects that require revenue support through the HBM and are part of the Phase 2 Cluster Sequencing Process.

Strand 1 of the NZHF aims to grow the pipeline of projects in the UK by providing development support for FEED and post-FEED studies. Government expects that Projects supported through Strand 1 will go on to apply for NZHF CAPEX and/or HBM support in future allocation rounds.

Projects should carefully consider which of the funding strands best meets their needs before applying for NZHF or HBM support, as they will only be able to apply to one strand per Project at any one time, and cannot switch between strands once they've been awarded funding for a project.

Projects can apply to multiple strands if they have different projects which cover separate costs. For example, a developer may require CAPEX through Strand 2 to take FID on an initial 2MW project, and then later wish to apply for HBM and CAPEX support via Strand 3 for an additional 20MW project that requires ongoing revenue support on the same site. If the additional project is reliant on the initial project seeking support via Strand 2 being successful in its application, the additional project is unable to be awarded funding until confirmation of grant funding for the initial project. Projects should check the timeline for each strand they are applying to in order to meet this requirement before submitting an application.

Government believes this approach will best cater to the varying needs and deployment trajectories of projects, delivering support to projects as quickly as possible while also maximising alignment with the HBM.

The 2022 HBM/ NZHF Electrolytic Allocation Round

For the 2022 HBM/ NZHF Electrolytic Allocation Round, projects can apply for HBM revenue support only, or they can apply for joint HBM revenue support and CAPEX support through the NZHF. Eligible projects will have the opportunity to be considered to receive necessary support under:

- HBM funding for projects operational before March 2025 will be provided by up to £100m of taxpayer funding that was committed through the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme in the Net Zero Strategy. It is intended that all HBM support will be levy funded from 2025 onwards, subject to consultation and Parliamentary approval of any legislation required. The HBM funding may include revenue support for small-scale hydrogen transport and storage. Any support will be negotiated on a project-by-project basis by taking several factors into account, including necessity, affordability and VfM for government. More specifically, and as set out in the HBM indicative Heads of Terms, this could include:

- the CAPEX, but not OPEX, costs associated with small-scale hydrogen transport infrastructure, and
- the CAPEX and/or OPEX costs associated with small-scale storage infrastructure.
- The NZHF's up to £240m of funding until 2025, a proportion of which will be delivered to projects also seeking HBM support via the 2022 HBM/ NZHF Electrolytic Allocation Round. The maximum grant funding intensity level (CAPEX %) for this allocation round is set at 20%. Projects will be able to apply for a CAPEX % up to 20% of the CAPEX that falls within the NZHF Scope. CAPEX costs for storage and transport are not included within scope of this NZHF funding.

Government hopes to support at least 250MW via the first Electrolytic Allocation Round, although it retains the right to allocate less, for example if it does not see sufficient projects coming forward that meet the eligibility criteria and present VfM to government. Funding would 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 a project represents VfM.

Government hopes the first Electrolytic Allocation Round will contribute towards the delivery of a wide range of benefits by 2030, including those set out in the Hydrogen Strategy⁶, such as:

- Progress towards the 2030 ambition
- Emissions reduction under Carbon Budgets 4 and 5
- Decarbonisation of existing UK hydrogen supply
- Lower cost of hydrogen production driven by learning from early projects, more mature markets, and technology innovation
- End to end hydrogen system with a diverse range of users
- Promote UK economic growth and opportunities, including jobs.

Additionally, government hopes this process will provide system benefits, where electrolytic hydrogen production can help with system balancing by providing flexible demand and energy storage to help integrate increasing levels of renewables. Excess renewable electricity can be used to produce hydrogen, which can be stored over time in large quantities. This hydrogen can be used flexibly to generate power when there is less sun or wind to power the grid, supporting the balancing of the electricity system and helping to reduce system costs.

1.2 Scope and Strategic Objectives

Scope

Projects successful at assessment and the Agreeing an Offer stage in the 2022 HBM/ NZHF Electrolytic Allocation Round will receive:

⁶ <https://www.gov.uk/government/publications/uk-hydrogen-strategy>

- Ongoing contractual revenue support via the HBM – this is expected to provide price support through a variable premium model, with volume support provided indirectly via a sliding scale approach.
- Where relevant, an offer of capital grant support through the NZHF to help overcome the high upfront costs and risks associated with initial electrolytic hydrogen production projects.

CAPEX support lowers lifetime project costs through lower financing costs. Providing CAPEX support through the NZHF to projects also receiving support through the HBM may therefore lower the amount of ongoing revenue support required, achieving better VfM for the taxpayer and/or consumers. We encourage projects to consider applying for NZHF CAPEX support alongside HBM revenue support in this window where appropriate, as it may lead to a better overall VfM.

Strategic Objectives

The 2022 HBM/NZHF Electrolytic Allocation Round is underpinned by the following strategic objectives:

- Kickstart the low carbon hydrogen economy across the UK, helping meet the aspiration of up to 2GW of low carbon hydrogen production capacity in operation or construction by 2025.
- Support projects to deploy at scale at the earliest opportunity, advancing government's aim to deploy up to 10GW of low carbon hydrogen production capacity by 2030, subject to affordability and VfM, with at least half from electrolytic hydrogen production capacity, and to do so at affordable costs by harnessing economies of scale.
- Deliver carbon savings to allow us to stay on track to meet Carbon Budget 5, Carbon Budget 6 and other net zero commitments.

We have the following objectives around the design and delivery of the funding:

- Ensure the application process is simple and accessible for applicants.
- Ensure the application process is fair and transparent.

1.3 Other Government Support

Government is providing significant support for research, development and demonstration of hydrogen use across UK industrial sectors, power generation, domestic heating and transport⁷. Government have already set out over £1 billion worth of government funding for hydrogen and other low carbon technologies across the value chain.

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067402/beis-hydrogen-funding-landscape-infographic.pdf

In April 2022, government published the Hydrogen Investment Package to drive further investment into low-carbon hydrogen production in the UK and enable projects to begin construction in the next two years. The Package includes an Investor Roadmap, and government responses to the consultation package on the HBM, NZHF and LCHS. The Investor Roadmap brings together the policy and funding steps government are taking to showcase the investment opportunity across the developing UK hydrogen economy.

Government's BEIS Hydrogen Funding Landscape Infographic⁸ provides information and competition timings for BEIS hydrogen funds launching in 2022 and 2023:

- Net Zero Innovation Portfolio (NZIP) Industrial Hydrogen Accelerator (IHA): Demonstrate end-to-end industrial fuel switching to hydrogen to provide evidence on feasibility, cost and performance.
- NZIP Industrial Fuel Switching (IFS): Support development of fuel switching and fuel switch enabling technologies, including hydrogen, for UK industry.
- Industrial Energy Transformation Fund (IETF): Support the deployment of technologies that enable businesses to transition to a low carbon future, including industrial fuel switches to low carbon hydrogen.

Government encourages you to consider carefully which competition best meets your project's needs.

Projects cannot receive government support from multiple sources (i.e. from both NZHF and IETF) for the same eligible costs and will need to comply with any relevant subsidy control requirements⁹.

1.4 Process Overview

A joint HBM and NZHF allocation process will aim to keep the applications for either solely HBM funding or joint HBM and NZHF funding as simple and efficient as possible. This means there will be a fully integrated application process for joint revenue support through the HBM and CAPEX support through the NZHF.

1.4.1 The Entry Process

The entry process will consist of three key stages:

⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067402/beis-hydrogen-funding-landscape-infographic.pdf

⁹ <https://www.gov.uk/government/publications/complying-with-the-uks-international-obligations-on-subsidy-control-guidance-for-public-authorities/technical-guidance-on-the-uks-international-subsidy-control-commitments>



Expression of Interest

To be considered under this Electrolytic Allocation Round, the Project Representative must submit an Expression of Interest (Eol) to government on behalf of their Project by 23:59 on 7 September 2022. The Project Representative is expected to be from the primary, or partner, organisation responsible for Project development which must be a legal entity.

Submitting the Eol by this date will allow Projects access to the Online Application Form and the 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 the Electrolytic Allocation Round. Any applications received without prior submission of an Eol will not progress to the evaluation stage. The Eol Template can be found [here](#).

Projects will be asked to confirm to the best of their knowledge and belief that they meet the relevant eligibility criteria within the Eol, and also provide additional information about their project plans. This includes information on the location and capacity of their electrolytic project, as well as their planned Commercial Operation Date. Projects will be required to provide supporting evidence to prove eligibility when they make a final submission.

Government may provide feedback to Projects at the Eol stage if it appears from the information provided that it does not meet one or more of the eligibility criteria. Projects will not however be prevented from making a full application on the basis of the information provided.

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 participate in the Electrolytic Allocation Round but have not submitted an Eol by this date should contact electrolytic.allocation@beis.gov.uk immediately.

Submission Window Engagement

In order to support Projects in preparing submissions, government intends to carry out engagement sessions, to ensure Projects have a clear understanding of the criteria and objectives in the Electrolytic Allocation Round and how to complete an application.

Government will be hosting an online competition briefing webinar on Wednesday 27th July 2022 to share details of the 2022 Hydrogen Business Model and Net Zero Hydrogen Fund Electrolytic Allocation Round.

Stakeholders interested in attending the webinar should register their interest via the registration form which can be found [here](#).

Government will also host engagement sessions to provide additional information about the Application Form and supporting templates. The dates for the engagement sessions are as follows:

- 25 August 2022
- 31 August 2022
- 5 September 2022

Stakeholders interested in attending should register their interest via the registration form which can be found [here](#).

In addition, government will host an engagement session with all Projects which submit an EoI, as above; the date for the engagement session is:

- 13 September 2022

Government will issue invitations to each of the Project Representatives once EoIs have been submitted. Project Representatives may in turn forward the meeting invite onto a maximum number of 2 relevant Project partners. Government expects the sessions to focus on the application process and technical elements and completion of the Project Application Form, with attendees having the opportunity to provide submission specific queries.

In addition to these engagement sessions, Projects may submit clarification questions on the application process by emailing electrolytic.allocation@beis.gov.uk.

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. Government will publish the question and the response provided, with all identifying data anonymised.

The deadline for the submission of clarification questions is 23:59 on 28 September 2022, ahead of the submission window closing on 12 October 2022.

Final Submission

As per the timeline set out in Section 1.5 of this document, Project Representatives will be required to submit their application for funding by 11:59am on 12 October. They will be responsible for submitting all the relevant Project information, as set out in section 2.1.

For the 2022 HBM/ NZHF Electrolytic Allocation Round, a business can lead on up to four applications, which must be materially different, and can be included as a collaborator, or project partner, in a further four applications. This approach will be reviewed, and future allocation rounds may allow businesses to lead on and be included as a collaborator on more than four applications.

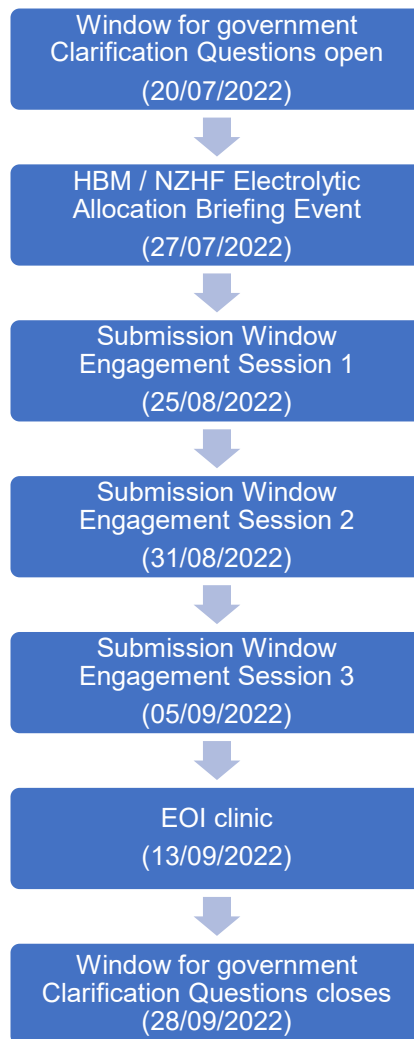
To lead a project or work alone, your organisation must be a UK registered business of any size. A business is defined as an enterprise undertaking economic activities. Academic institutions, research and technology organisations (RTOs), public sector organisations or charities cannot lead or work alone.

To collaborate with the lead, 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)

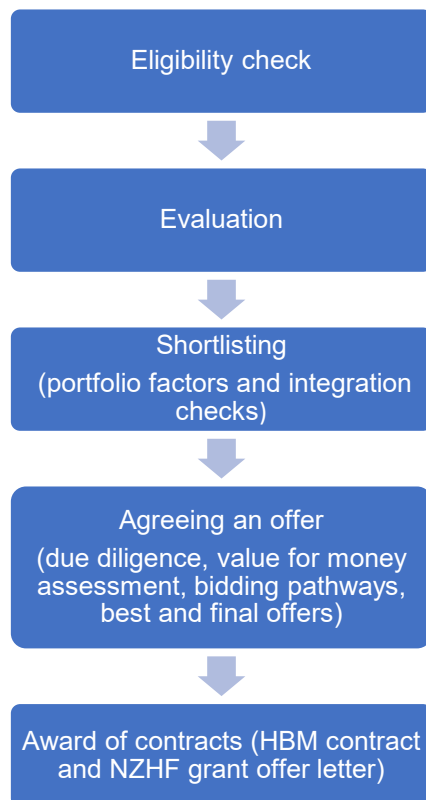
In the event a business submits more than four applications, the first four applications submitted will be reviewed and assessed only. Any subsequent applications beyond that will not be accepted.

The submission window engagement consists of the following stages:



1.4.2 The Process for Submitted Applications

The following process for applications will occur.



Eligibility

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. During the evaluation process government will perform additional checks on the credibility of the evidence provided and the robustness of any calculations involved. If Projects fail to provide sufficient evidence in respect of their satisfaction of the eligibility criteria, government will consider these to have failed the eligibility check and they will not progress further in the evaluation process.

In order to be eligible for this Electrolytic Allocation Round, Projects must meet the following criteria (details of which are set out in Section 3 of this document):

- Production plant located entirely in the United Kingdom and the Project Representative's business being registered in the UK.
- Commercial Operation Date (COD) by end of 2025¹⁰
- Technology Readiness Level (TRL) 7 or more
- New build hydrogen production facilities¹¹

¹⁰ (Dependent on the signing of contracts from July 2023)

¹¹ Government are defining 'New Build Production Facilities' as a newly constructed facility built for the specific purpose of producing hydrogen. This comprises the entirety of the production process. An exemption from this

- Electrolytic hydrogen production facilities
- Has identified at least one qualifying offtaker¹²
- Has identified an electrolyser supplier(s)
- Minimum hydrogen production capacity of 5MW ¹³
- Meets the requirements of the Low Carbon Hydrogen Standard (LCHS)
- Demonstrated access to finance

Evaluation

Applications which meet the eligibility criteria (see Section 3) and the minimum deliverability score (see section 4) will be assessed against a set of defined evaluation criteria and sub-criteria (see Section 4 of this document for our evaluation criteria). These criteria will assess the costs and wider benefits of each project. At the end of this stage, projects will have a total weighted score, with highest scoring projects ranked first. Projects will be assessed on their:

- Deliverability
- Costs
- Economic Benefits
- Carbon Emissions and Environmental Factors
- Market Development and Learning
- Additionality of Electricity Source

Shortlisting

In the event of oversubscription for the Electrolytic Allocation Round, government may limit the number of projects that are selected to take part in the Agreeing an Offer stage. The shortlisting process is set out in more detail in section 4.4. It may include a consideration of portfolio factors and integration checks.

Portfolio factors

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. 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 through the application of portfolio factors after assessment of individual projects. In the event of oversubscription, it is possible that an application that received lower assessors' scores may be recommended for funding over higher scoring projects in order to achieve a more balanced portfolio. This would involve considering the relevant factors as follows:

requirement will be applicable for hydrogen generation projects that have received funding from the Net Zero Innovation Portfolio and Energy Innovation Portfolio programmes and may already be under construction/operational but require revenue support via the HBM to operate on an ongoing commercial basis. These projects will still be required to meet subsidy control requirements.

¹² Where qualifying offtaker refers to offtakers that are eligible for HBM support

¹³ The 5MW threshold applies to individual projects. Projects will not be able to aggregate capacity across different locations or have a phasing approach to build capacity gradually to 5MW.

- Location
- Affordability
- Size (MW capacity)
- Diversity of offtaker / Energy input source / operating model¹⁴

Integration checks

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 the portfolio of projects selected to enter into negotiations 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.

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.

Government may repeat the integration check before final award of funding, to ensure the final selection of projects are additional to one another.

Projects will be informed whether they were successful or not after the shortlisting stage in early 2023. Being shortlisted does not guarantee funding. Government may choose to take more projects through to the Agreeing an Offer stage than can be awarded funding, to ensure competitive tension and to mitigate the risk of projects dropping out.

Agreeing an Offer

Shortlisted Projects will be invited to the Agreeing an Offer stage, which will include:

- a due diligence process
- a value for money assessment
- a process to agree an offer of CAPEX % grant and HBM Strike Price via bidding pathways
- Agreement of best and final offer (BAFO)

Due Diligence and Value for Money

At the Agreeing an Offer stage, government intends to carry out due diligence. This is an opportunity for government to confirm and verify any aspect of the application and to seek updated information from Projects. Due diligence is anticipated to cover technical, legal, financial, and commercial compliance matters. At this stage government will also carry out a full value for money assessment to ensure that a Project meets the minimum value for money requirements for government spending.

¹⁴ 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

To carry out due diligence and value for money assessments of Submissions, government reserves the right to request any information it requires from Projects and other parties involved in the Project such as delivery partners and offtakers.

Bidding pathways

Government is minded to proceed with having two or more pathways to agreeing an offer of support for the Low Carbon Hydrogen Agreement (LCHA) and CAPEX grant through the NZHF; the shortlist of projects is likely to be subdivided into these pathways. Each pathway will have a different level of engagement and bidding process, to streamline the process and allow projects to deploy at the earliest opportunity.

Best and final offers

Following the completion of the bidding process (under whichever pathway), due diligence and value for money assessment, government and a Project will agree the offer of support (noting that not all negotiations will be successful), through a Low Carbon Hydrogen Agreement (LCHA) and, where applicable, CAPEX grant through the NZHF.

Awarding of Contracts

Following the agreement of BAFOs, successful Projects will receive an initial conditional offer letter from BEIS. The conditional offer is subject to the application of any final portfolio factors and integration checks and any additional required due diligence.

Following successful completion of these checks a Low Carbon Hydrogen Agreement (LCHA) will be issued in respect of the revenue support and, where applicable, a Grant Offer Letter will be issued in respect of the CAPEX support.

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

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 any 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 of the fund 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.

1.5 Timeline

Table 1 sets out the timeline on which we intend to execute the Electrolytic Allocation Round. Please note that these timelines are indicative, and government reserves the right to alter these timelines at any stage in the process.

Table 1: 2022 HBM/ NZHF Electrolytic Allocation Timeline

Milestone	Date
Application window launch	20 July 2022
EoI Window	20 July – 7 September 2022
Engagement Sessions	August & September 2022
Submission Deadline	12 October 2022 (11:59am)
Evaluation Stage	October 2022 – Early 2023
Announced shortlist	Early 2023
Agreeing an Offer Stage	Early 2023 – mid 2023
Award of Contracts	From July 2023
Projects take final investment decision	Three months from award of contracts
Projects in operation	By 31 st December 2025 (subject to award of contracts by July 2023)

Hydrogen Business Model Development timeline

The Government published on 8 April 2022 the indicative Heads of Terms (HoTs) for the hydrogen business model contract that sets out a preliminary and indicative framework for the principal terms and conditions that are expected to be included in the underpinning contract – the Low Carbon Hydrogen Agreement (LCHA). Government aims to finalise the hydrogen business model in 2022, enabling the first contracts to be allocated from July 2023.

Future Allocation

Government is aiming to open a similar process to this Electrolytic Allocation Round in 2023, for contract award in 2024, and aim to have up to 1GW of electrolytic hydrogen in construction or operational by end of 2025 via these two allocation rounds.

As set out in the Energy Security Strategy, government is aiming to move to price competitive allocation from 2025 onwards as soon as legislation and market conditions allow. These future

rounds may include scope for non-CCUS, non-solely electrolytic technologies for hydrogen production such as biomass.

1.6 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. In particular, 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 government's 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 this Electrolytic Allocation Round; 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 HBM at any stage of this Electrolytic Allocation Round 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 this Electrolytic Allocation Round; or
- Government has otherwise determined in accordance with the rules provided to Projects during any stage of this Electrolytic Allocation Round or subsequent Agreeing an Offer stage that the relevant Project will not be awarded financial support.

Being invited to participate in any stage of this Electrolytic Allocation Round does not mean that support will be awarded. The Secretary of State reserves the right to cancel, amend or vary the Electrolytic Allocation Process, including any envisaged stage and any document issued pursuant to it, at any point and for any reason with no liability on his 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 this Electrolytic Allocation Round, 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 following this Electrolytic Allocation Round, including the form of the Hydrogen Business Model, 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 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 Project 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 your personal information. Please see BEIS' Personal information charter¹⁵, this sets out the standards you can expect from the collection, holding, or use of your personal information.

¹⁵ <https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/personal-information-charter>

Section 2: General Submission Guidance

2.1 Final Submission Structure

Projects wishing to apply must select a Project Representative who will be provided access to the Online Application Form, following completion of the EoI, this Project Representative will be responsible for submitting all the relevant Project information. The Project Representative is expected to be from the primary, or partner, organisation responsible for Project development which must be a legal entity.

Project Representatives must provide completed copies of the EoI and, subsequently, each of the relevant submission forms found on the Electrolytic Allocation landing page, along with supporting and mandatory evidence and information where required, to be considered under this Electrolytic Allocation Round. These forms streamline the application process, allowing Projects to submit project-related information in a structured format that simplifies the assessment process for assessors. 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 details of the Project submission. The Project Application Form (and associated supporting documentation) will form the primary basis for scoring under the deliverability, carbon emissions and environmental factors, market development and learnings, and additionality criteria, and will supplement the two templates described below in assessing against the economic benefits and cost criteria. Our intention in designing the Project Application Form is to avoid making the process unnecessarily onerous for Projects, and to allow for references to supporting documentation, rather than reproduction of information, wherever possible. This supporting documentation should be concise and referenced within the Project Application Form and the References Matrix; and submitted alongside it, via the Online Application Form.
- **Economic Benefits Template (Annex C)** - this document requires Projects to provide a range of key data inputs, which are used to assess a submission's potential for generating economic benefits such as number and quality of jobs and transparency of supply chain procurement process. This template together with the relevant section of the Project Application Form forms the primary basis of evaluation against the Economic Benefits criterion.
- **Emissions Reduction Template (Annex E)** – this document requests information on the total emissions reduction impact of a plant up until 2040, to understand the extent to which a Project can make a positive contribution to the UK's efforts to meet its net zero commitments. Total emissions reduced will be considered using an average of CO₂e emissions reduced per annum over the length of the plant's first 15 years of operation.

- **Project Risk Register (Annex A)** – this document requires Projects to input a range of information regarding all project related risks and how these are being mitigated. This should cover technical, commercial, operational, financial and delivery risks related to all key project aspects, including electricity sources, hydrogen production, offtakers and hydrogen distribution and storage. The primary metric for evaluation against the Deliverability criterion.
- **Technical Datasheet (Annex B)** - this document requires Projects to input a range of technical information related to the hydrogen production facility. This includes design and system specification data related to the electricity sources, production facility, storage and offtaker requirements. The primary metric for evaluation against the Deliverability criterion.
- **References Matrix (Annex F)** - this document requires Projects to reference all evidence issued alongside the Project Application Form and completed templates. These must be named in line with the reference requirements set out within the template and must clearly state which question answers(s) they are being submitted to support.
- **Project Costs Template (Annex D)** – this document requires Projects to input a range of information regarding the lifetime costs of their projects. Information provided in this template will be used to calculate the Levelised Cost of Hydrogen – the primary metric for evaluation against the Cost criterion.
- **Hydrogen Emissions Calculator** - The Low Carbon Hydrogen Standard ('the standard') sets a maximum threshold for greenhouse gas emissions allowed in the production process for hydrogen to be considered 'low carbon hydrogen'. Compliance with the standard will help ensure new low carbon hydrogen production makes a direct contribution to our carbon reduction targets. This calculator is focused on calculating GHG emissions from one consignment of hydrogen, according to the methodology set out in the standard. This calculator will be used during the eligibility stage to confirm whether a project is likely to be compliant with the standard, and at evaluation stage under the Carbon Emissions and Environmental Factors criterion.

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 Project Representative¹⁶
- The accuracy of any and all information contained within the submission.

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

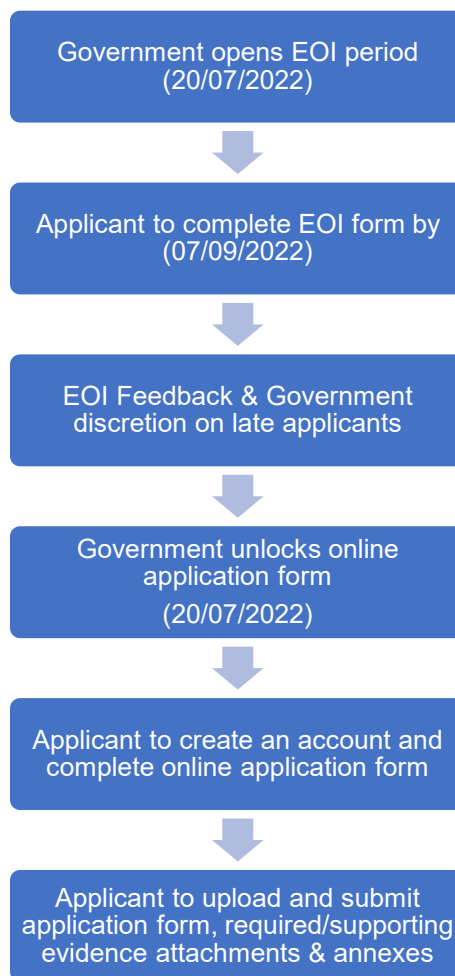
After submitting, Projects will be notified via email to confirm that the submission has been received by government. Government reserves the right to take any piece of information provided in any section of the submission into account in relation to any component of the Electrolytic Allocation Round's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

Government may 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.

¹⁶ These may apply where, in the past 5 years, the representative, organisation, or any other person who has powers of representation, decision or control in the organisation has been convicted of: participation in a criminal organisation, corruption, fraud, terrorism, money laundering, breaches of environmental regulations, labour laws.

The application form stage will consist of the following stages:



2.2 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.

We include in this guidance some updates on HBM policy relevant to electrolytic projects:

Dual Participation in the Renewable Transport Fuel Obligation (RTFO) and HBM

Government recognises that some projects may be considering revenue support through both the Hydrogen Business Model and the RTFO. Subject to compliance with subsidy control principles and the final design of the HBM, producers in receipt of Hydrogen Business Model support will be allowed to participate in the RTFO. Volumes produced will be allowed to be claimed under the RTFO, subject to meeting the RTFO's eligibility criteria, but claiming under both the HBM and RTFO for the same volumes of hydrogen will not be permitted. Work is

ongoing to develop administrative arrangements and enforcement regime enabling dual participation and guarding against producers claiming under both schemes for the same costs.

Ineligible offtake and end users

Government's response to the HBM consultation confirmed that sales to certain hydrogen offtakes and end uses will not qualify for HBM support under initial contracts and outlined where further work was needed to assess whether and how to address potential challenges to the business model created by certain hydrogen offtakers. More information on ineligible offtakers is included in Section 3 on eligibility criteria.

2.3 Eligibility and Assessment

The eligibility criteria have been specifically developed for this Electrolytic Allocation Round. Only those Projects that meet the relevant eligibility criteria will be evaluated further and be capable of being shortlisted to participate in the Agreeing an Offer stage. The Project Representative will be first asked to confirm eligibility at the EoI stage.

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

This applies, for example, to hydrogen generation projects that have received funding from the Net Zero Innovation Portfolio and Energy Innovation Portfolio programmes and may already be under construction / operational but require revenue support via the HBM to operate on an ongoing commercial basis, although funding for the same costs will not be provided twice. Further detail is outlined in Section 3 of this document.

For this round, government intends to apply the same six categories of evaluation criteria as set out in the April 2022 Market Engagement exercise: Deliverability, Carbon Emissions and Environmental Factors, Costs, Economic Benefits, Market Development and Learning, and Additionality of Electricity Source; with refinements around sub-criteria and weightings to better represent some of the themes raised in responses to the Market Engagement exercise. These criteria will be used to evaluate eligible projects. Projects' overall scores will be calculated using their final scores against each criterion, which will then be combined according to the associated weightings, as set out in section 4. Projects will be ranked in order of highest overall score to lowest.

At this stage, in the event of oversubscription, government may consider the appropriate portfolio of electrolytic projects, and apply portfolio factors. Integration checks will also take place to reach a final selection. This means that it is possible that an application that receives lower assessors' scores may be recommended for funding over others to achieve a more balanced portfolio of projects.

These shortlisting factors and how they will be applied is described in section 4.4. The selected Projects will be taken forward to the Agreeing an Offer stage as outlined in Section 5.

The considerations set out in this document apply to eligible Projects that are shortlisted as part of this first Electrolytic Allocation Round. For future allocation rounds, government will consider reviewing the eligibility and evaluation criteria.

2.4 Monitoring and evaluation

Government will provide more detail on monitoring and evaluation requirements to projects that are taken through to the Agreeing an Offer stage. Therefore, the information below may be subject to change.

Successful projects that receive revenue support via the HBM and, where applicable, grant funding from the NZHF will be expected to record and provide data to BEIS as part of the monitoring and evaluation plan. The data required will be set out within the Grant Offer Letter and Low Carbon Hydrogen Agreement (LCHA). This information will be used to evaluate the effectiveness of the intervention and provide evidence to improve policies and inform decisions. It is distinct from, though may use the same data as, audit and compliance monitoring, which is needed to ensure projects comply with conditions of funding.

One aspect of this is that Projects in receipt of funding will be compliant with the LCHS. To demonstrate this, Projects will be required to submit data relating to their compliance with the LCHS on a quarterly basis.

Government will provide more detail on monitoring and evaluation requirements in due course.

2.5 General Considerations for Submission

Credibility and Consistency of Information

In seeking to identify Projects which are most suited to deployment in the mid-2020s, 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.

With this in mind, 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 properly supported by the accompanying documentation that they submit.

Across each of the evaluation criteria set out in Section 4 of this document, Projects should provide supporting information and evidence which demonstrates 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 sign off and/or letters of intent.

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.

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.

Section 3: Eligibility Criteria

This section sets out the eligibility criteria for projects that apply for the 2022 HBM/NZHF Electrolytic Allocation Round and the rationale behind these requirements.

Eligibility criteria serve several functions. They help ensure financial support is aligned with the HBM and NZHF's strategic objectives (as set out in Section 1 of this document); provide clarity to market participants on what projects could potentially receive financial support; and can discourage speculative applications.

The eligibility criteria for this allocation round builds on the proposed eligibility criteria outlined in the HBM/ NZHF Electrolytic Allocation Market Engagement document. The criteria consulted on under the Market Engagement exercise were positively received by respondents with 51.3% of those who provided a written response agreeing with them. Key feedback from the Market Engagement exercise is summarised in the Government response document [here](#) – feedback included concerns that the 'COD by end of 2025' date could be difficult to meet with a risk of delays; a desire for clarity on the minimum capacity threshold; and further detail on how projects can meet the LCHS and requirements around identifying an offtaker and demonstrating access to finance.

The eligibility criteria for this allocation round also builds on the core eligibility criteria set out in the NZHF consultation, which was also positively received by respondents (with 72% agreeing with the high-level eligibility criteria). However, some differences are necessary to achieve the objectives of this allocation round. For example, as detailed below, government is proposing that projects would need to be electrolytic hydrogen production facilities to be eligible to apply for this allocation round, while the NZHF only strands outlined in Section 1 of this document are technology neutral.

Government's response to the Market Engagement exercise, published on 20 July 2022, confirmed that government will apply the following eligibility criteria to this allocation round, which are described in further detail below:

- Project plant located entirely in the United Kingdom and the Project Representative's business being registered in the UK.
- Demonstrate that it is able to be operational no later than the end of December 2025¹⁰
- Using core technology that has been tested in a commercial environment, Technology Readiness Level (TRL) 7 or more
- New build hydrogen production facilities¹¹
- Electrolytic hydrogen production facilities
- Has identified at least one qualifying offtaker¹²
- Has identified an electrolyser supplier(s)
- Minimum hydrogen production capacity of 5MW¹³
- Meets the requirements of the Low Carbon Hydrogen Standard (LCHS)
- Demonstrate access to finance

Projects that pass the eligibility check would progress to evaluation, details of which are set out in Section 4 of this document. However, if upon closer scrutiny of Project's supporting evidence during evaluation, it becomes apparent that a Project does not meet any of the eligibility criteria, government will at that point consider it to have failed eligibility and reserves the right to end the evaluation.

3.1 Project plant located entirely in the United Kingdom and the Project Representative's business being registered in the UK.

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

The application must be led by a UK Registered business.

3.2 Commercial Operational Date (COD) by end of 2025

This criterion aligns with government's aim to have up to 1GW of electrolytic hydrogen in construction or operation by 2025 and the 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. COD in the context of new build hydrogen production facilities means the date when the facility is commissioned and ready to commence operations. Note that this is intended as a backstop date; having an earlier COD could count favourably towards the project at the evaluation stage.

At the eligibility stage, Projects will be asked to provide a target COD. The Project Schedule and the robustness of the information provided to support it will be assessed further during the evaluation stage.

Government recognises the concerns expressed by respondents to the Market Engagement exercise on meeting this criterion due to risk of delay. As a result, the requirement for the COD no later than the end of 2025 is dependent on the signing of contracts from July 2023 – if signing of contracts is delayed beyond July 2023 due to reasons outside the Applicants control, for example due to delays to the Agreeing an Offer process, government reserves the right to allow the COD to be extended upon receiving an applicant's request.

Separately, as set out in the indicative Heads of Terms for the Low Carbon Hydrogen Agreement¹⁷, government proposes that the Target Commissioning Window and Longstop Date will be adjusted day-for-day for any delays that occur due to "Force Majeure" (and potentially other events outside the Producer's control to be specified). Given the Heads of

17

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067365/indicative-heads-of-terms-for-the-low-carbon-hydrogen-business-model.pdf

Terms are preliminary and indicative only, the provisions set out therein are subject to further consideration and development by government.

3.3 Using core technology that has been tested in a Commercial Environment, Technology Readiness Level (TRL) 7 or more

To be eligible to apply to this Electrolytic Allocation Round 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 BEIS innovation funding ends. In this context, the core production technology refers to the electrolyser, and government believes that both PEM and Alkaline electrolysers meet this requirement.

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 explain how the proposed production technology meets this requirement using the TRL definitions listed below.

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 - 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.

3.4 New build hydrogen production facilities

Only new build hydrogen production facilities are eligible to apply to this Electrolytic Allocation Round. 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 comprises the entirety of the production process. Where new hydrogen production equipment shares pre-existing balance of plant, hydrogen transport and/or storage equipment, this shall be deemed permissible. This also includes new phases of existing projects, where additional hydrogen is produced through new electrolyser modules being added to electrolytic facilities. 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.

An exemption from this requirement will be applicable for hydrogen generation projects that have received funding from the Net Zero Innovation Portfolio and Energy Innovation Portfolio programmes and may already be under construction / operational but require revenue support via the HBM to operate on an ongoing commercial basis. Projects will still be required to meet all other eligibility criteria requirements in order to be eligible to apply to this allocation round, including meeting the minimum production capacity of 5MW and being operational by end of 2025 or earlier and will not be able to apply for additional CAPEX support through the NZHF. Projects will also be required to meet subsidy control requirements and will not be able to seek funding on the same costs twice.

An exemption from this eligibility requirement will apply to projects that have received funding through the following competitions:

- [Industrial Hydrogen Accelerator](#)
- [Low Carbon Hydrogen Supply 2](#)
- [Longer Duration Energy Storage](#)
- [Storage at Scale](#)

This list may be expanded for future allocation rounds. Projects that have received funding from the above competitions and require further information regarding an exemption can contact government via the following e-mail address: electrolytic.allocation@beis.gov.uk

3.5 Electrolytic hydrogen production facilities

The 2022 HBM/ NZHF Electrolytic Allocation Round will provide funding to low carbon electrolytic hydrogen production facilities only. For the purpose of this document, 'electrolytic hydrogen production' refers to water electrolysis, where water is split into hydrogen and oxygen using low carbon electricity. Projects will be required to describe the type of production the project will focus on, confirming that it is electrolytic hydrogen as defined by BEIS.

Pipeline analysis suggests that almost all projects likely to meet other proposed eligibility criteria will be using electrolytic hydrogen production technology, for example 'TRL 7 or more', 'Minimum production capacity of 5MW' and 'COD by end of 2025'. This will allow for better comparison between projects with similar technologies in this first allocation round and ensure the assessment remains on track to meet the ambitious timelines we have set out in Section 2 of this document.

This does not preclude the inclusion of other technologies in future allocation rounds, in line with government's ambition to support a range of technologies where they can make a significant contribution to our hydrogen production ambitions whilst also supporting broader energy policy.

3.6 Has identified 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 that are eligible for HBM support under this allocation round (a list of ineligible offtakers for the purposes of the HBM 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 at the earliest opportunity and deliver carbon savings. Whilst feedback provided during the Market Engagement exercise suggested that this criterion could be challenging to meet, government considers this a reasonable requirement for Projects looking to take FID and deploy within the timeline outlined in Section 1.5.

For clarity, in the context of the Electrolytic Allocation process, an offtaker is both the end user of low carbon hydrogen and, where relevant, any intermediary party who may purchase and resell hydrogen to end users¹⁸.

To demonstrate this, Projects should have an agreement or evidence of progress towards an agreement with potential qualifying offtakers, as well as provide the details of any agreed

¹⁸ Please note that risk-taking intermediaries will not qualify for HBM support under this allocation round. See "*Risk taking intermediaries as offtakers*" below for more detail.

offtakers in the Project Application Form. This could be shown, for example, by a memorandum of understanding or letter of intent between the hydrogen producer and proposed offtaker if available. At the evaluation stage, further checks will be undertaken regarding the robustness and appropriateness of the offtaker(s) and any offtaker agreements.

Qualifying end users under the HBM

Our response to the HBM consultation confirmed that sales to certain hydrogen offtakes and end uses will not qualify for HBM support under initial contracts and outlined where further work was needed to assess whether and how to address potential challenges to the business model created by certain hydrogen offtakers. An updated list of these ineligible offtakes and end uses for the 2022 HBM/ NZHF Electrolytic Allocation Round is provided below. Projects applying to this allocation round must have at least one qualifying offtaker and must apply for HBM support for at least a proportion of their offtake. These non-qualifying volumes only apply for the HBM revenue support: a Project could receive CAPEX support on their whole plant, even if some volumes of hydrogen produced are ineligible for HBM support. Section 4.1 of this guidance provides information on how ineligible offtakers will be considered at the evaluation stage.

Gas blending as an offtaker

Volumes of hydrogen blended into the natural gas grid will not be eligible through this allocation round.

Under current health and safety regulations (the Gas Safety (Management) Regulations 1996 (GSMR)), the amount of hydrogen allowed in the existing gas network is no greater than 0.1% by volume. The Government has committed to make a policy decision in 2023 on whether to enable blending up to 20% hydrogen (by volume) into GB gas networks, subject to the outcomes of ongoing economic and safety assessments and wider strategic considerations.

Government currently views blending as a transitional option as, due to the limited role of natural gas in heating under net zero, it only has limited long-run decarbonisation potential compared with other end users of hydrogen, such as industry, transport, or power generation. However, government considers there may be significant value in having blending available to help producers manage volume-risk, particularly during the initial years of the hydrogen economy as the number of hydrogen end users available grows, and hydrogen transport and storage infrastructure develops. If the Government decides to take steps to enable blending, it will look to ensure that blending does not displace supply of pure hydrogen to these longer-term end users, but rather acts as a backstop for hydrogen producers facing volatile, or temporarily unavailable demand.

Government is in the process of assessing different market arrangements and commercial support options to deliver blending, including whether and how HBM support could be designed to deliver blending's intended role as a demand-sink. Government does not anticipate completing this in time for the award of initial HBM contracts awarded through this allocation round, which is why volumes with gas blending as an offtaker will not be eligible.

However, government will consider a contractual re-opener for initial contracts which could enable support for blended volumes in the future.

Export Offtake

As set out in the response to the HBM consultation and given the primary objective of the HBM is to kickstart the UK's low carbon hydrogen economy, volumes of hydrogen intended for export will not be eligible for revenue support.

Risk taking intermediaries as offtakers

Volumes sold to a risk-taking intermediary will not be eligible for subsidy under the HBM through this Electrolytic Allocation Round. For the purpose of determining eligibility, a risk-taking intermediary is defined as a person that purchases hydrogen for the purpose of resale.

Risk-taking intermediaries would make it more challenging to monitor the use of hydrogen subsidised through the business model and to enforce the contractual measures regarding restricted and non-qualifying end users. Though government recognises the potential contribution of risk-taking intermediaries in a well-functioning market, government does not consider that allowing such entities to directly benefit from subsidy would represent value for money for the taxpayer in the early hydrogen economy.

Government is examining the possible implications of this position to ensure it does not create a barrier to the establishment and use of hydrogen transport and storage (T&S) systems. This includes considering the licensing requirements under the Gas Act 1986, in particular whether there is a need for any adjustments to be made in respect of these licensing requirements.

Government is also considering the treatment of the government hydrogen village heating trial, which may require a limited use of risk-taking intermediaries, to enable it to be supplied by HBM subsidised hydrogen.

It should be noted that, through this position, government is not excluding non-risk-taking intermediaries from playing a role in the market. Non-risk-taking intermediaries may charge a fee to a hydrogen producer or end user for a service (e.g. brokerage or hydrogen storage), but would not take ownership of the hydrogen.

Government will consider the need to review this position in future, both for existing contracts and future allocation rounds. For example, government's concern around monitoring sales via risk-taking intermediaries to end users could be addressed through a future low carbon hydrogen certification scheme (depending on final scheme design). Similarly, government's concern around value for money could be addressed if a market benchmark price for low carbon hydrogen could be used as the reference price.

Government will also consider the potential impacts of this position as a bespoke regulatory framework for hydrogen T&S networks is developed. In the recent Energy Security Strategy, government committed to designing, by 2025, new business models to support the development of hydrogen T&S infrastructure. Government intends to consult later in 2022 on high level design options for these business models, including questions of wider economic regulation.

3.7 Has identified an electrolyser supplier(s)

Hydrogen producers looking to apply for support through this Electrolytic Allocation Round would need to have identified an electrolyser supplier(s). This is to give assurance that, if it were to receive funding, the Project is sufficiently developed in concept to deploy at the earliest opportunity.

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

Government recognises that the chosen supplier may change as the Project develops, therefore the evidence provided does not need to consist of a final quote, however supporting evidence of formal agreements would be welcome.

3.8 Minimum hydrogen production capacity of 5MW

For this Electrolytic Allocation Round, government has set a minimum production capacity of 5MW (MW output). This ensures government is not using limited resources on assessing smaller projects which do not meet its strategic aims, and instead focus on bringing forward projects larger than 5MW which will achieve scale up. This will also ensure assessment remains on track to meet the ambitious timelines government has set out in Section 1.5 of this document.

The 5MW threshold is in recognition of the nascent stage of the hydrogen market and the uncertainties around the project pipeline. It also takes into account feedback received during the Market Engagement exercise where respondents called for certainty around the threshold. Government does not want to introduce overly restrictive requirements at eligibility stage that will reduce competition for this first allocation round.

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. Projects with a production capacity of less than 5MW are able to apply to the NZHF only allocation rounds outlined in Section 1 of this document, if they meet all other eligibility criteria.

3.9 Meets the requirements of the UK Low Carbon Hydrogen Standard (LCHS)

Hydrogen producers looking to apply for support will need to demonstrate how hydrogen production proposals meet the requirements of the UK [LCHS](#). This criterion would ensure that hydrogen production receiving HBM and NZHF 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 will have a single threshold for absolute emissions, set at point of production at 20 gCO_{2e}/MJ_{LHV} of hydrogen. The standard also defines principles for low carbon electricity input that must be met by electrolysers to demonstrate compliance with the standard. These include: 1) energy attribute information to demonstrate ownership of the low carbon

electricity input; 2) proven links to low carbon electricity input; and 3) temporal correlation to prove time-based links between generation and consumption in the hydrogen production process. The LCHS will be reviewed over time, but government would not expect any policy changes to apply retrospectively to projects already receiving support through the HBM. Environmental, planning and other regulations may also apply to projects applying for the HBM.

At the eligibility stage, Projects will be required to complete and upload the [Hydrogen Emissions Calculator \(HEC\)](#) and provide the projected $\text{gCO}_2\text{e}/\text{MJ}_{\text{LHV}}$ of their hydrogen, demonstrating that the project is likely to meet the LCHS guidance including the emissions threshold of $20\text{gCO}_2\text{e}/\text{MJ}_{\text{LHV}}$ H_2 (leeway of $+0.5 \text{gCO}_2\text{e}/\text{MJ}_{\text{LHV}}$ H_2). The calculator will confirm based on the data submitted whether the project is likely to be compliant with the LCHS.

Projects must also provide the following:

- A Risk Reduction Plan demonstrating how fugitive hydrogen emissions at the production plant will be minimised. This must be a pdf, up to two A4 pages long.
- A Risk Plan providing estimates of expected ranges of remaining fugitive hydrogen emissions by the plant. Producers should provide an upfront estimate of expected annual fugitive hydrogen emissions from the production plant, in kgH_2/yr . The estimate should include a breakdown of different emission types considered, and as a minimum should show consideration of each emission type.¹⁹ This must be a pdf, up to two A4 pages long.

3.10 Demonstrated access to finance

To ensure Projects which enter the evaluation stage have the appropriate support to reach operation, Projects must be able to show information about their financing plan and the status of discussions with financiers (if appropriate). This could be shown, for example, by a letter from the board of equity partners which commits to financing the project, letters of support from financiers and/or confirmation of the ability to fund from existing liquidity.

During the evaluation process government will perform additional checks regarding the robustness and credibility of the financial evidence provided, as well assessing evidence inputted into the Financial Statement Template.

If your project relies on RTFO support from the Department for Transport, you must upload an in principle letter of support which confirms that the portion of fuel being claimed against the RTFO may be eligible for RTFO support. Please note that this is a provisional letter of support and does not guarantee you will receive RTFO funding. RTFO assessments can take over two

¹⁹ Guidance on the different fugitive emissions sources in the hydrogen production process can be found in section 8.2 of the UK Low Carbon Hydrogen Standard - Guidance on the greenhouse gas emissions and sustainability criteria: <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>

months and we would advise Projects to engage with the Department for Transport early to avoid disappointment.

Section 4: Evaluation Criteria

4.1 General considerations

This section sets out the evaluation criteria which will be used in assessing the hydrogen submissions for the 2022 Electrolytic Allocation Round. 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 HBM. 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)
- Are aligned to the strategic objectives of this allocation round

Projects will be evaluated against six evaluation criteria, which are set out in Table 2 below. 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 VfM.

Table 2: Headline Evaluation Criteria for the 2022 HBM/ NZHF Electrolytic Allocation Round

Criteria	Definition
Deliverability	The level of confidence government has in the delivery plan put forward by the project and the date at which the Project can, credibly, be operational by.
Carbon Emissions and Environmental Factors	The extent to which the Project uses the lowest carbon and most efficient production pathways and considers and mitigates wider environmental impacts resulting from the production of hydrogen.
Costs	Whether the Project will deliver cost-effective hydrogen.
Economic Benefits	The contribution the hydrogen plant will make to the economy.
Market Development and Learning	The extent to which the Project offers growth and learning opportunities in the production and usage of hydrogen.
Additionality of Electricity Source	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 decarbonation.

The evaluation criteria for this allocation round builds on the proposed evaluation criteria outlined in the HBM/ NZHF Electrolytic Allocation Market Engagement document. The criteria consulted on under the Market Engagement exercise was positively received by respondents with 59% of those who provided a written response agreeing with it. Key feedback from the Market Engagement exercise is summarised in the Government response document [here](#).

To evaluate which Projects should receive the HBM, government is asking Projects to primarily focus their submissions on their installed hydrogen capacity by the end of 2025. Under the Market Development & Learning and Additionality criterion Projects will be able to detail plans beyond the 2025 installed hydrogen capacity to demonstrate growth potential, including potential future changes to the plant, such as feedstocks or hydrogen storage and transport related to the existing operations. However, any answers for the Deliverability criterion should not include any capacity expansion plans beyond 2025.

Identification and demonstration of progress towards securing the Project's feedstocks (electricity and water supply) and offtakers will be critical in the evaluation criteria, particularly in Deliverability, Emissions Reduction, Cost Considerations and Additionality:

- The electricity source is a vital factor in achieving the LCHS requirements as well as the strategic objectives of the NZHF and the HBM. Therefore, government requires sufficient evidence to demonstrate that the design and operation of the overall plant, incorporating the electricity supply with hydrogen delivery is technically robust and will achieve the required outputs. Essential to this is understanding how the generation of intermittent renewable energy source(s), if applicable, will be balanced with the forecasted demand of the offtakers, including any storage requirements.
- The environmental impact of the proposed water source shall be clearly described including water treatment processes and any proposed mitigations.
- Government recognises that in the absence of an established low carbon hydrogen market and shared hydrogen infrastructure, the hydrogen offtaker plays a crucial role in determining whether a hydrogen plant is viable. Government therefore requires evidence relating to offtakers, and the transportation, compression, and storage of hydrogen from production plant to offtakers, where appropriate, throughout the Project Application Form and any supporting application templates.

Approach to scoring

Projects will be allocated a score against each of the criteria according to the weightings explained herein. Scores will be allocated based on the assessment of the relevant evidence against the scoring tables outlined below.

Weightings

The table below sets out the weightings allocated to each of the Electrolytic Allocation Round's evaluation criteria for new build hydrogen Projects. The final weightings reflect feedback gathered via the Market Engagement exercise.

Projects' overall scores will be calculated using their finalised scores against each criterion, which will then be combined according to their associated weightings as set out in Table 3 below.

Table 3: Scoring weights applied to the six criteria

Criterion	Weighting
Deliverability	35%
Costs	20%
Economic Benefits	20%
Carbon Emissions and Environmental Factors	10%
Market Development and Learnings	10%
Additionality	5%

Once a Project has been fully assessed and given an overall score, portfolio factors and an integration check will be applied to determine if it will be taken through to the Agreeing an Offer stage. More information can be found in section 4.4 on the shortlisting process.

Minimum Scoring

Projects will need to achieve a minimum score of five out of ten when assessed under Deliverability to have the opportunity to be considered for negotiations. Those who do not achieve a minimum of five for Deliverability overall will not progress any further in the allocation process. This is to ensure only reasonably viable Projects are considered for the Agreeing an Offer stage.

Ineligible oftakes and end uses

As set out in Section 3 on eligibility criteria, volumes sold to some hydrogen oftakers may not be eligible for ongoing HBM financial support. Projects applying to this allocation round must apply for the HBM and supply eligible volumes to a proportion of their oftakers. Projects applying for CAPEX funding from the NZHF under this allocation round can receive support on the whole production facility even if some of the hydrogen is not eligible for HBM support.

Ineligible oftakes and end uses are:

- Offtake seeking to blend into the gas grid;
- Export Oftakes;
- Risk taking intermediaries oftakers.

Projects should clearly state the volumes of eligible and ineligible offtakers within their application and provide evidence for each.

As explained in Section 3.6, given the uncertainties around the use of blending into the gas grid as an offtaker for projects in this first allocation round, 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 ineligible offtakers will be considered throughout the evaluation process where relevant. However, these ineligible offtakers are likely to score less favourably than eligible offtakers under the Deliverability criterion (which is weighted at 35%), and therefore maximising eligible 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 are dependent upon support being provided by the RTFO, the applicant should provide evidence of how they would mitigate the effects of the withdrawal, expiry or reduction of that governmental support scheme to provide assessors with confidence in the project plan and viability.

4.2 Evaluation Criteria

4.2.1 Deliverability

This criterion is used to reflect our strategic aim of enabling projects to deploy at the earliest opportunity, to develop the low carbon hydrogen market and advance government's aim to deploy up to 10GW of low carbon hydrogen production capacity by 2030 and meet net zero and CB6 commitments.

The Deliverability criterion for this will consider the Project's capability and capacity to deliver successfully and be operational by end of 2025. Projects demonstrating a high degree of delivery confidence for achieving this Commercial Operation Date is a key factor for this evaluation criterion. Importantly, it will consider their plans to deliver: the hydrogen production plant; arrangements with their planned off-takers and those offtakers' viability; as well as the electricity and water sources arrangements and viability. It will also review and assess the necessary hydrogen transport, compression, and storage infrastructure.

A Projects' Deliverability score will be based on their performance against three key factors:

- Government's confidence that the project can credibly be commercially operational and technically capable of achieving COD no later than the end of 2025. The assessed COD can be adjusted to reflect the application evidence provided if this does not demonstrate a credible and realistic date stated.
- Government's confidence that the project has commercial and technical arrangements in place with viable off-takers for most (75% or above) of their hydrogen volumes.
- Government's confidence that the project has commercial and technical arrangements in place with a viable electricity source required to meet their hydrogen production

volumes and LCHS requirements, or can demonstrate the expertise and a robust methodology to meet LCHS compliant electricity requirements.

In assessing against this criterion, Projects will be credited for providing clear, concise, and credible evidence for the following areas for the hydrogen plant and, where applicable, offtakers, water and electricity supply. Each area will be assessed as part of Deliverability, with each area being assessed both separately and altogether, to provide an aggregated score for the Deliverability criterion.

Organisation and Governance

- Organisation and Project credibility and capability to deliver the hydrogen production plant including the credibility and capability of any relevant consortium partners.
- Ability of the Project organisations to access the proper level of resource and capability necessary to deliver the hydrogen production plant. Specifically, the following may be taken as evidence of this:
 - Demonstration of the Project organisation's competence to manage and coordinate a Project of this scale and complexity;
 - Demonstration that the individuals within the Project organisation have the relevant competence and experience to manage and contribute to the development of a project of this scale and complexity

Financial and Commercial Deliverability

- The project applicant and the ultimate parent company (who will be providing an appropriate parental guarantee) will need to provide:
 - A copy of the filed statutory financial statements for each of the past three financial year ends;
 - A copy of the latest available set of management accounts showing the year-to-date financial performance, since the last set of filed statutory financial statements, and current financial position.
- A breakdown of the proposed sources of funds for the project along with the current status and proposed timings for receiving those funds, in order to demonstrate that the project is fully funded. If subsidies relating to the renewable transport fuel obligation ("RTFO") form part of the funding model then evidence will be required as to the applicants ability to successfully secure that funding.
- A copy of the financial forecast for the project applicant and parent company for the next five years.
- Government may also use publicly available information related to the financial viability of the applicant, the ultimate parent company, proposed offtakers and other organisations involved in the development and delivery of the Project, such as electricity generators for the purpose of cross-checking the information provided and seeking to redress any omissions.

Project Deliverability

- The Project's overall delivery execution plan for completing the project, this includes how the project is setup, governed and the remaining development and construction phases will be managed and completed as planned.
- An integrated Project plan with strong schedule logic that incorporates activity durations which are judged to be reasonable, for example in comparison to similar

activities undertaken on other Projects. Importantly, the Project plan should consider any applicable processes, such as acquiring any necessary planning permissions or for procuring suppliers, particularly for long lead items. The critical path and relevant lead times should be clearly identified with floats incorporated as required. This Project plan should also demonstrate interdependencies with proposed off-takers' plans to accept the proposed hydrogen volumes.

- Accurate identification of the critical planning and consent stages, with these properly accounted. Similar evidence is required and factored into the assessment for proposed off-takers and electricity generation sources.
- Detailed risk register in place to accurately identify and assign responsibility for key risks, with proposed mitigations populated. The Project should demonstrate where mitigations are already in place and present a clear implementation plan where they are not. This should include information on any areas where project configurations could be adjusted to mitigate delivery risks. This should also take account of cyber risks to both the Project and the resilience of the infrastructure once commissioned, demonstrating secure by design principles. The Project should also provide evidence of the steps taken to identify and assess cyber risks and the mitigations that will be put in place to ensure strong cyber resilience.
- Evaluation of capability and capacity of supply chains to deliver required materials, goods, and skills for the construction and operation of the hydrogen production plant, including:
 - Evidence that key contracts are in place with core suppliers of equipment and services - or, at a minimum, substantial engagement with prospective suppliers.
 - Evidence of engagement with technology licensors.
- Clear adherence to safety regulations, and identification and mitigation of any residual safety risks to be as low as reasonably practicable across all components of the hydrogen plant and off-takers. This could be in a form of a safety case.

Technical Deliverability

- Details from Project/off-taker on the end use of the exported hydrogen, for example:
 - Process use, i.e. continuous use 24/7, intermittent etc;
 - Space heating use, i.e., to track seasonal demand profiles;
 - Transport applications;
 - Pressure and purity requirements of off-taker.
- Breakdown of the percentages of hydrogen produced to be supplied to each off-taker and self-certification of the eligible or ineligible volumes.
- Clear outline of off-takers location, and compression, storage, and transportation requirements to deliver the hydrogen to them.
- Clear plan identifying how the hydrogen plant relates to its electricity and water source(s), the role of any hydrogen distribution and storage and how the producers plan to operate the plant day-to-day by outlining their operational philosophy.
- Operational plant schedule demonstrating hydrogen volumes availability, expected demand profile and priority of proposed off-takers. The electricity generation profile from the generation source or supplier, demonstrating alignment between supply and demand and describing any mitigation measures included to deal with inconsistencies, such as maintenance outages. This should include:
 - Details of the expected production profile and how the potential variability of hydrogen supply and demand will be managed (e.g. lowest generation and highest demand periods)
 - Grid power requirements (if required) aligned to the clearly defined operating philosophy.

- Clear description of the operating philosophy (e.g. continuous, intermittent or seasonal) and how this will be acceptable to the offtaker(s)
- An agreement or evidence of progress towards an agreement with hydrogen offtakers. For example, this could be:
 - A letter of intent or provisional agreement with offtakers.
 - Memoranda of Understanding, collaboration agreements or draft Heads of Terms being in place between the hydrogen producer and its proposed offtakers.
 - Government recognises that the level of commitment in place between an early-stage Project and its partners may naturally vary depending on the Project's stage of development so any evidence of formal and informal agreements and discussions would be welcome.
- Details of offtaker demand profiles (individual and aggregated for whole plant). For projects that will need to temporarily store hydrogen, government would expect to see an equivalent planned generation profile and hourly storage input/ output balance to prove the system will indeed be capable to matching demand.
- Clear plan identifying any differences in hydrogen specification between different offtakers and how this will be achieved and managed.
- Where offtakers are short-term or uncertain, a plan for how to account for these uncertainties, for example identifying credible contingency offtakers for the volumes of hydrogen intended for these offtakers.
- Progress to date against the stated Project plan, with documentation and engineering information provided to demonstrate that the Project and its proposed offtakers and electricity supply are on track to meet the COD. This includes deliverables stated that are aligned to the declared status of the Project's development. An agreement, or evidence of progress towards an agreement, for a low carbon electricity energy source. Government recognises that the level of commitment in place between an early-stage Project and its partners may naturally vary depending on the Project's stage of development so any evidence of formal and informal agreements and discussions would be welcome. For example, this could be:
 - Details of the intended power purchase agreement that will be agreed (including agreed duration). Specifically, how will half-hourly or hourly low / zero carbon generation be aligned to half-hourly or hourly electrolyser use
 - Distribution Network Operator (DNO) engagement on grid capacity and reinforcement requirements
 - Direct wire connection to a renewable energy generation plant
- Clear evidence of hydrogen plant system through means of engineering drawings and designs. For example, this could be:
 - Piping and Instrumentation diagrams.
 - Line diagrams.
 - Site layout.
 - Equipment specifications.

The Hydrogen Village Trial as an offtaker

As set out in the Ten Point Plan for a Green Industrial Revolution²⁰, the Government is supporting industry to deliver a 100% hydrogen heating village trial by 2025 (hereafter the Hydrogen Village Trial (HVT)). The Trial will be developed by a Gas Distribution Network

²⁰ <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution>

(GDN). The final location for the HVT is not expected to be confirmed until 2023, and the trial is initially expected to run for around two years.

Government anticipates that some Projects may apply to the first allocation round and include the HVT as a potential offtaker for their hydrogen, before a final decision on the location of the HVT has been made. Government wants to ensure projects bidding into this round are able to support the HVT, 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 with the relevant GDN to supply hydrogen to the HVT 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 HVT
- Have identified offtakers to accept the hydrogen beyond the lifetime of the HVT.
- Otherwise satisfy the scoring requirements for the deliverability criterion.

The Project Application Form includes further information as to the specific pieces of supporting evidence which may be beneficial in supporting the Project to perform well against the Deliverability criterion. Submissions forms that should be completed have been set out in section 2.1 of this document.

Deliverability minimum score

As stated above, Projects that do not sufficiently demonstrate commercial or technical viability to deliver the Project before the end of December 2025 will not be able to score at or above the minimum score threshold of five out of ten and will be removed from further evaluation against the other criteria. This additional level of scrutiny is to ensure only viable Projects are considered and progressed through to the Agreeing an Offer stage.

Deliverability scoring Framework

Deliverability will be assessed against the following key factors and will be completed where applicable for the plant/project, offtaker and energy supply:

- Evidence of the organisation(s) capability and credibility to deliver the Project as stated
- Confidence in the organisational financial health and project financing and commercial arrangements
- Evidence of a robust, credible and achievable project delivery plan, including schedule, risk and management of critical dependencies (e.g. supply chain)
- Confidence in the delivery and performance of the technical solution selected.

A score between one and 10 will be assigned using an assessor framework to each sub criteria which hold an individual weighting that will then contribute to the overall score out of 10.

In light of the responses and supporting evidence provided, assessors will assign a final score considering all information provided by the Project as well as its credibility. The scoring categories for this criterion are defined as follows:

Score	Description
<p>Low (1-2)</p>	<ul style="list-style-type: none"> • Responses and evidence in relation to one or more questions in the submission form are missing or incomplete. • Little to no confidence in the Project being operational by the end of 2025 or in its delivery capability more generally. • Little to no evidence of viable commercial or technical arrangements with offtakers of hydrogen and alignment with the electricity supply and storage arrangements. • Little to no confidence that proposed offtakers for at least 50% of hydrogen volumes are commercially or technically viable.
<p>Medium – Low (3-4)</p>	<ul style="list-style-type: none"> • Adequate responses given to all questions in the submission form, with some level of supporting evidence provided. • Supporting information provides adequate confidence in the Project being operational by the end of 2025. • However, there may be reservations regarding the credibility of some supporting information, or in the Project’s capability in certain delivery areas. • Some evidence of commercial and technical arrangements with offtakers and alignment with the electricity supply and storage arrangements, but limited in concept or plan. • Some confidence that proposed offtakers for 50% or above of hydrogen volumes are commercially or technically viable. • Moderate confidence in the financial viability of the organisation and/or their ability to finance project.
<p>Medium (5-6)</p>	<ul style="list-style-type: none"> • All questions in the submission form are fully answered, with a reasonable level of supporting evidence provided. • Supporting information provides a reasonable degree of confidence in the ability of the Project to be operational by the end of 2025. • However, there may be reservations regarding the credibility of some supporting information, or the developer’s capability in certain delivery areas. • Evidence of commercial and technical arrangements with offtakers for at least 50% of the hydrogen volumes, and confidence that those offtakers are commercially and technically viable and align with the electricity supply and storage arrangements. • Good confidence in the financial viability of the organisation and/or their ability to finance project.
<p>Medium-High (7-8)</p>	<ul style="list-style-type: none"> • Comprehensive responses given to all relevant questions in the submission form, with a strong level of supporting evidence provided.

	<ul style="list-style-type: none"> • Supporting information provides a high degree of confidence in the capability of the hydrogen developer to deliver an operational hydrogen plant by the end of 2025. • Evidence of commercial and technical arrangements with offtakers for most (75% and above) of the planned hydrogen volumes and align with the electricity supply and storage arrangements. • Good degree of confidence that those offtakers are technically and commercially viable. • High confidence in the financial viability of the organisation and/or their ability to finance project.
<p>High (9-10)</p>	<ul style="list-style-type: none"> • Comprehensive responses are given to all questions in the submission form, with clear and credible evidence provided to demonstrate delivery capability. • Supporting evidence provides a high degree of confidence in the ability of the hydrogen developer to deliver an operational hydrogen plant by the end of 2025. • Strong evidence of commercial and technical arrangements with all offtakers, which align with the electricity supply and storage arrangements. • High degree of confidence that all offtakers are technically and commercially viable • Very high confidence in the financial viability of the organisation and/or their ability to finance project.

Submission requirements

1. Completion of Section 5 Project Deliverability within the Project Application form
2. Complete Annexes:
 - a. Annex A - Risk Register template
 - b. Annex B - Technical datasheet
3. Provide mandatory supporting information, including:
 - a. Level 2 Project schedule
 - b. Schedule Narrative
 - c. Supply, production and demand profiles - Excel table showing all hydrogen offtakers demand profile over an annual cycle, alongside the planned hydrogen production and storage profile and electricity generation profile over a representative annual cycle during its operation, if applicable, demonstrating how this matches the electricity supply profile and capacity.
4. Supporting evidence allowed. Examples include:

Organisational structure – company level questions

- Organisational Structure
- New Entity creation agreements / details
- Company Capability Statement
- Examples of relevant project experience

- Internal Governance and Approvals Process

Organisational structure – project level questions

- Project organogram
- CVs for key personnel
- Partnering or sub-contracting agreements (client side delivery organisation only)
- Project Capability Statement (project case studies)

Business plan and financial health – company level

- Statutory financial statements
- Management accounts
- Business plans and financial forecasts for both the company and the project

Financing plan – project level

- A CAPEX schedule and a description on how any funding gaps will be settled.
- A financing plan

Project Execution

- Project Execution Plan
- Interdependencies and assumptions register
- Stakeholder Engagement Register
- Stakeholder Engagement Plan
- Commercial / Contractual Agreements, Memorandum of Understanding (MoU)/HoTs, Letter of Intent (LoI)

Planning and Consenting

- Planning and Consents Register
- Planning and consenting agreements
- Evidence of engagement with statutory bodies, preparation work for applications or approvals
- Completed studies and surveys to supply planning, consenting and permitting requirements

Risk Management

- Risk Management Plan
- Risk Policy

Health and Safety

- Design risk register
- Production facility safety case
- Site Hazardous Zone Classification (ATEX)
- HAZID / HAZOP
- RAMS
- Construction Phase plan
- Identification of and steps towards key H&S studies HAZOP/HAZID/COMAH e.g. workshops/reviews

- H&S Management Plans/Procedures
- Incident reporting procedures
- Previous project H&S experience

Supply Chain Management

- Procurement and Supply Chain Management Plan

Hydrogen Offtaker

- Offtaker detail form (agreement, volumes, business details)
- Other evidence of engagement with the offtaker
- Details of any dependencies, actions and risks to achieving a full agreement for demand, including securing alternative offtakers if one or more of the offtaker's demand profiles are variable and could lead to surplus hydrogen capacity

Electricity Supply

- Details of the intended power purchase agreement that is being considered (including agreed duration, parties in agreement, quantity of power supply, location of power supply)
- Details of the power procurement strategy or methodology statement
- DNO engagement on grid capacity and reinforcement requirements
- Direct wire connection to a renewable energy generation Project

Hydrogen Production Facility

- Identification of hydrogen production technology and consideration of storage and transport plans
- Evidence of engagement with technology suppliers
- Feasibility studies/technology studies
- Engagement with utilities
- Engagement with EPC contractor for FEED (if relevant)
- Engineering Study (clearly stating level of definition) and where possible including:
 - Project description
 - PFDs and P&IDs
 - FDS (Functional Design Specification)
 - Line diagrams
 - Site layout
 - Engineering drawings and design
 - Equipment specification
 - Commissioning plan

Systems Operating Procedures

- RAM Study
- Shutdown and maintenance plans
- Management of variable/seasonal demand profiles

4.2.2 Carbon Emissions and Environmental Factors

Template Requirement: Hydrogen emissions calculator

This criterion reflects the Government's commitment to UK emission reductions targets and in recognition of the aim of supporting the lowest carbon and most efficient production pathways with limited wider environmental impacts, to contribute to the Government's emission reduction targets, including CB6 and net zero.

The Carbon Emissions and Environmental Factors criterion is assessed as two sub-criteria.

- The Carbon Emissions sub-criteria will assess the potential offered by each project to produce low carbon hydrogen. The CO₂e intensity of hydrogen will be calculated to identify which projects are using the lowest carbon and most efficient production pathways to produce hydrogen. To do this, government would calculate CO₂e intensity per unit of hydrogen produced.
- The Environmental Factors sub-criteria will assess the wider safety and environmental impacts associated with the Project and the proposed mitigation measures.

Each sub-criterion will be scored individually. A weighted average will then be used to provide an overall score, with the Emissions sub-criterion being weighted higher, at 60%, than Environmental Factors, at 40%. The credibility of a hydrogen plant's electricity source from evidence provided under the Deliverability criterion will also be considered as part of the scoring of the Emissions sub-criteria.

Carbon Emissions

As set out above, under this sub-criterion the CO₂e intensity of hydrogen will be calculated to identify which projects are using the lowest carbon and most efficient production pathways to produce hydrogen. As a minimum, all projects will be required to meet the LCHS to be eligible to apply to the Electrolytic Allocation Round, meaning they must show they are likely to produce hydrogen below the threshold of 20 gCO₂e/MJ_{LHV} and demonstrate this using the methodology set out in the - [LCHS guidance document](#) and [Annex A of the LCHS guidance](#) if they wish to seek funding²¹. Projects will be asked to calculate the CO₂e emissions intensity of the hydrogen produced using the [Hydrogen emissions calculator \(condensed version: electrolytic projects only\)](#) tool located on the gov.uk website.

Projects must also provide the following:

- A Risk Reduction Plan demonstrating how fugitive hydrogen emissions at the production plant will be minimised. This must be a pdf, up to two A4 pages long.

²¹ Please refer to the LCHS guidance document: <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>

- A Risk Plan providing estimates of expected ranges of remaining fugitive hydrogen emissions by the plant. Producers should provide an upfront estimate of expected annual fugitive hydrogen emissions from the production plant, in kgH₂/yr. The estimate should include a breakdown of different emission types considered, and as a minimum should show consideration of each emission type.²² This must be a pdf, up to two A4 pages long.

Carbon Emissions Scoring

The emissions sub-criteria will be scored out of 20. A point will be awarded for every gram of CO₂e below the 20gCO₂e/MJ_{LHC} threshold a project is able to produce hydrogen at COD. For example a project producing hydrogen at 13gCO₂e/MH_{LHV} of hydrogen will score 7 for this sub-criteria. This sub-criteria score will then become an input to the formula that outputs the overall criterion score.

Environmental Factors

This sub-criterion is included to ensure Projects consider, as early as possible, the potential associated environmental impacts of their 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, and to ensure the hydrogen market is developed in a sustainable way. The Project should seek to design out and minimise environmental risks and maximise wider environmental co-benefits.

Environmental Principles

It is important to assess comprehensively what environmental risks could be associated with the hydrogen production plant, and how you can reduce those risks. Projects will be required to submit an environmental factors risk and mitigation plan. Government outlines three environmental principles that summarise how you should approach this.

1) Consider environmental risks early and comprehensively. This includes:

- Building environmental considerations into decision making at the earliest stage – not as an afterthought.
- Providing robust evidence that allows the environmental risks to be effectively managed and regulated, and which considers risks of deployment at commercial scale.
- Assessing all impacts from cradle-to-grave - including upstream inputs & raw materials, decommissioning, and safe long-term recovery or disposal of waste.

2) Minimise the impacts and risks to people and our environment – air, land, and water. This includes:

²² Guidance on the different fugitive emissions sources in the hydrogen production process can be found in section 8.2 of the UK Low Carbon Hydrogen Standard - Guidance on the greenhouse gas emissions and sustainability criteria: <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>

- Maximising decarbonisation and greenhouse gas reduction within safe environmental limits (this will take into account the CO₂e intensity of hydrogen production provided under the previous sub-criterion).
- Maximising resource, energy and water efficiency – wasted resources, energy and water represent harm without benefits.
- Maximising co-benefits for people and the environment.

3) Are fit for the future, including resilience to the impacts of climate change.

Further information on guidance for specific Environment Agency regulations of relevance for electrolytic projects can be found in Appendix A of this document.

Environmental Factors Scoring

A score between one and ten will be assigned using an assessor framework in light of the responses and supporting evidence provided. Assessors will assign a score considering all information provided by the Project as well as its credibility. This sub-criteria score will then become an input to the formula that outputs the overall criterion score.

The scoring categories for these sub-criteria are defined as follows:

Score	Description
Low (1-2)	<ul style="list-style-type: none"> • Environmental plans are at an early concept phase, with little to no credible evidence demonstrating how the proposed Project will mitigate impacts on the environment. • Low confidence in the Project’s ability to deliver meaningful mitigations to environmental impacts.
Medium – Low (3-4)	<ul style="list-style-type: none"> • Limited demonstration of progress to date on environmental plans. Proposal partially demonstrates how the Project plans to mitigate impacts on the environment. • Some confidence in the Project’s ability to deliver meaningful mitigations to environmental impacts.
Medium (5-6)	<ul style="list-style-type: none"> • Information provided for environmental plans indicate reasonable progress to date. • Reasonable level of credible evidence demonstrating how the Project plans to mitigate impacts on the environment. • Reasonable confidence in the Project’s ability to deliver meaningful mitigations to environmental impacts.
Medium-High (7-8)	<ul style="list-style-type: none"> • Information setting out environmental plans indicates good progress and are well thought through. • Good demonstration of how the Project’s plans to mitigate impacts on the environment. • Good confidence in the Project’s ability to deliver meaningful mitigations to environmental impacts.
High (9-10)	<ul style="list-style-type: none"> • Information on the environment demonstrates comprehensive plans and shows significant progress to date. • The proposal provides a robust and highly credible evidence base demonstrating specific measures in mitigating impacts on the environment.

	<ul style="list-style-type: none">• High confidence in the Project's ability to deliver meaningful mitigations to environmental impacts.
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Overall Carbon Emissions and Environmental Factors Score

The Carbon emissions and the Environmental factors sub-criteria scores will be input into the following formula to provide an overall criteria score out of ten.

$$\text{Overall Score} = \frac{\text{Carbon Emissions Score}}{20} \times 6 + \frac{\text{Environmental Factors Score}}{10} \times 4$$

Submission requirements

1. Completion of Section 6 within the Project Application Form
2. Complete Annexes:
 - a. None
3. Mandatory supporting information, including:
 - a. Complete the [Hydrogen emissions calculator \(condensed version: electrolytic projects only\)](#)
 - b. Risk Reduction Plan
 - c. Risk Plan
4. Supporting evidence allowed. Examples include:
 - Environmental Risk Register
 - Preliminary Environmental Impact Assessment
 - Waste Management Plan

4.2.3 Costs

The purpose of the Cost criterion is to ensure that the cost of delivering the 2022 HBM/ NZHF Electrolytic Allocation Round is acceptable to the taxpayer and/or the consumer (in the case of levy funding).

To assess the Cost criterion, government will require Projects to fill in a template (Annex D) as part of their submission providing information across a range of areas, including:

Development expenditure (DEVEX)

- Capital expenditure (CAPEX)
- Operating expenditure (OPEX) including replacement costs
- Fuel expenditure (FuelEx) and usage
- Financing costs and capital structure
- Decommissioning costs and saleable assets
- Hydrogen produced and delivered to offtakers

This information will be used to calculate a Levelised Cost of Hydrogen (LCOH) as follows:

$$LCOH_{Delivered} = \frac{NPV \text{ Costs}}{NPV \text{ Hydrogen Delivered}}$$

Specifically, the LCOH calculated will be the LCOH delivered, which will include the costs of production, compression, purification, storage, and transport of hydrogen to an offtaker. This aligns with the feedback government received via the Market Engagement exercise, where many respondents agreed the LCOH should be inclusive of transport and storage costs, rather than solely at the point of production. Cost information is requested out to 2040, apart from decommissioning costs which are requested out to 2100. Further detail on the exact costs applicants are required to provide can be found in the template.

Within the template Projects will also be required to provide a cost classification for each of the costs they provide based on The Association for the Advancement of Cost Engineering (AACE) cost estimate classification system. These classifications should reflect how developed the cost estimate is and the remaining uncertainty a Project has around a given cost. Further guidance on the appropriate cost classification to choose for each cost is provided in the template. Projects will also be required to provide information as part of their application on how they have derived their cost and production estimates, including any evidence, assumptions and calculations underpinning these estimates. Government will use the information and evidence submitted by applicants within and alongside the template to assess the robustness of the cost estimates and will make an adjustment to account for remaining uncertainty or a 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.

Scores for this criterion will be assigned on the basis of a competitive ranking, with projects with a lower LCOH scoring more highly. Scores will be allocated on a relative basis so that the score reflects the cost-effectiveness of a project relative to other applicants.

Submission requirements

1. Completion of Section 7 within the Project Application Form
2. Complete Annexes:
 - a. Annex D – Project Costs template
3. Mandatory supporting information, including:
 - a. None
4. Supporting evidence allowed. Examples include:
 - Engineering studies (conceptual / pre-FEED / FEED etc)
 - Supplier quotations
 - Cost estimations and uncertainties
 - Independent studies

4.2.4 Economic Benefits

The Economics Benefits criterion is included to ensure government realises the opportunities for the supply chain, businesses, technologies, and people to benefit from the growth of the hydrogen economy.

This criterion aims to 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 look to demonstrate the contribution the hydrogen production plant can make to the economy and government's levelling up agenda.

Evaluation against this criterion will be undertaken on the basis of information provided through the Economic Benefits Template (Annex C) and answers provided within the Project Application Form, alongside any associated supporting documentation.

The Economic Benefits Template is structured to allow Projects to provide data for both the direct and indirect jobs they expect to provide throughout Project development and operations. As with other criteria, the onus will be on the Project to provide sufficient supporting information and justification for any assumptions made, and assessors will be instructed to score accordingly.

Projects will be assessed against the Economic Benefits criterion with reference to four key factors:

- Number and quality of jobs
- Transparency of supply chain procurement process
- Investment in hydrogen skills
- Wider economic benefits

Number and quality of jobs

This will consider the number of direct and indirect jobs the Project can create and safeguard, as well as when these jobs will be realised and where they are located, and the overall wage premium generated by these jobs. The template will consider the salaries of these jobs as a contribution to Gross Value Added (GVA), with the data being evaluated using standard Green Book appraisal methods (refer to Annex C for completion of this section).

Projects will need to demonstrate how they have derived their job estimates; including evidence, assumptions and calculations underpinning these estimates. Annex B provides further information and an example.

Transparency of supply chain procurement processes

Projects will need to demonstrate how they will make their procurement strategies as transparent as possible. For example, identifying supply chain opportunities, advertising them as early as possible, and beginning meaningful engagement with hydrogen supply chain companies.

Investment in hydrogen skills

Government welcomes evidence that demonstrates that Projects are investing in training programmes to develop skills in hydrogen, for example in apprenticeships and retraining programmes. Government will evaluate the wage uplift generated via plans for future upskilling, to the extent that these factors support the delivery of the Project, via standard Green Book appraisal methods. Projects should provide detail on the start dates and duration of these programmes and how they will target impacts to regions, local communities and at a national level, as well as how they will support retraining workforces transitioning from other sectors and contribute to equality and the diversity and inclusivity of the workforce (refer to Annex C for completion of this section).

Wider economic benefits

In line with the commitments made in the Ten Point Plan and the Government objective to drive local and regional growth, Projects should ensure their responses address their contribution to economic growth, including within the local area, in line with the following key strategic priorities:

- Synergies with other decarbonisation programmes and potential to become a Hydrogen ‘SuperPlace’: This could be demonstrated through, for example, the hydrogen produced in clusters as an energy vector in that local area being used for a heating in a community trial or with the potential to be used in the hydrogen Town Pilot, or through the mapping of a broader decarbonisation pathway for the region, identifying the economic benefits and opportunities of decarbonisation, as well as the development of skills required to realise these benefits.
- Regeneration and community renewal: Projects should consider how they can contribute to improving and widening the economic benefits associated with their development and operation to local communities. This could include but is not limited to, for example, impacts on air quality, increased attractiveness to other businesses, local transport links or land value. Projects should provide evidence of any wider economic benefits that they deem to be relevant. Any engagement with local communities or institutions that has taken place, or will take place, in support of these plans will be seen as beneficial.
- Equality, diversity, and inclusion: Projects should consider how they can ensure the diversity and inclusivity of their workforce, as well as how to incorporate hiring practices which do not disadvantage those with protected characteristics.

In light of the responses and supporting evidence provided, assessors will assign a final score considering all relevant information provided by the Project in the Project Application Form and the Economic Benefits Template, as well as its credibility. The scoring categories for this criterion are defined as follows:

Score	Description
Low (1-2)	<ul style="list-style-type: none"> For its scale, the Project submissions demonstrate only minimal levels of economic benefit or no economic benefit at all. Limited evidence provided which gives little to no confidence in the ability of Project to implement and realise the expected plans (if any) and any consequential economic benefits.
Medium – Low (3-4)	<ul style="list-style-type: none"> For its scale, the Project submission demonstrates limited levels of economic benefit. Supporting evidence around economic benefits may be limited in places but gives some confidence in the ability of the Project to implement and realise the expected plans and economic benefits.
Medium (5-6)	<ul style="list-style-type: none"> For its scale, the Project submission demonstrates a reasonable level of economic benefit. Range of supporting evidence provided, giving reasonable confidence in the ability of the Project to implement and realise the expected plans and economic benefits.
Medium-High (7-8)	<ul style="list-style-type: none"> For its scale, the Project submission demonstrates a good level of economic benefit. Good level of supporting evidence provided throughout, giving a good degree of confidence in the ability of the Project to implement and realise its projected plans and economic benefits.
High (9-10)	<ul style="list-style-type: none"> For its scale, the Project submission demonstrates a high or very high level of economic benefit. Comprehensive and highly credible supporting evidence gives a high degree of confidence in the ability of the Project to realise its plans and economic benefits.

Submission requirements

1. Completion of Section 8 within the Project Application Form
2. Complete Annexes:
 - a. Annex C – Economic Benefit Template
3. Mandatory supporting information, including:
 - a. None
4. Supporting evidence allowed. Examples include:
 - Direct and indirect job reports
 - Market screenings
 - Hydrogen vision
 - Collaboration agreements

4.2.5 Market Development and Learning

Hydrogen Projects applying through the Electrolytic Allocation Round could be some of the first plants producing low carbon hydrogen in the UK. The Market Development and Learning criterion therefore asks Projects to demonstrate how their hydrogen production plans and associated infrastructure contribute to the development of a hydrogen market. Government wants Projects to demonstrate how they will create and share knowledge from early hydrogen deployment and promote innovations.

Unlike the other hydrogen criteria, in this criterion, government will be considering Projects' plans for their hydrogen production plant's development beyond 2025.

In assessing against this criterion, Projects will be credited for providing clear and credible evidence for the following areas:

For **Market Development**, we ask that Projects provide evidence on how their plans help realise aspects of a Hydrogen Economy which are set out in the UK Hydrogen Strategy and the 10 Point Plan for a Green Industrial Revolution. We ask that Projects demonstrate:

- 1) Longer-term plans to increase production volumes beyond those specified in previous criteria (up to 2025), contributing to the Government's ambition for installed capacity of low carbon hydrogen of 10GW by 2030.
- 2) Plans for the development of and integration into wider hydrogen network infrastructure (including storage) to enable supply of hydrogen to a range of offtakers, including from different sectors and for different applications. This could include engagement and planning done to date with existing gas network operators or plans to develop new private hydrogen networks.
- 3) Any other contribution their Project makes to the development of the hydrogen economy. For example, supporting trials of hydrogen heating use to unlock future deployment, fostering public and consumer awareness and acceptance of hydrogen, demonstrating the business case for private investment in the UK's hydrogen economy.

For **Learning**, we will be looking for a Project to demonstrate:

- 4) That it will deliver replicability benefits, including having plans in place to reduce future costs of electrolytic hydrogen Projects. In particular, Projects which contribute to moving a technology, or multiple technologies, from one technical readiness level (TRL) or commercial readiness level (CRL) to another.
- 5) That it will contribute to the development of innovative technologies or novel plant or end use configuration/ design.
- 6) That it will generate and share knowledge. Here, government will be considering both the Key Knowledge Deliverables (KKDs) that will be generated and shared as well as the plans the Project has in place to disseminate this knowledge in a way to benefit future Projects. This may include working with government, research institutions, universities, Local Enterprise Partnerships, Higher Education Colleges, and businesses to maximise impact. In particular, request evidence of:
 - Open Technology, where the operator has the appropriate rights in relation to the installed technologies to work with third parties such as researchers and suppliers to adjust and develop the electrolytic technology over the lifetime of the

- plant. By being able to develop adjustments during the lifetime of the plant, further learning and innovation can be realised, and costs can be reduced.
- Open Access, where few or no restrictions on sharing information and learnings from the Project apply, and those that do are limited in scope.
- A commitment to knowledge sharing.

The onus will be on the Project to describe what KKDs it will produce and which ones it will be willing to share (either in full or redacted as appropriate).

Evaluation of this criterion will consider the details of the proposal, robustness of plans, the credibility of evidence and overall confidence in proposed outcomes. Where proposed outcomes constitute a longer-term ambition rather than a deliverable for the initial capacity (built by 2025), proposals should demonstrate how far advanced these ambitions are, along with evidence for how the initial installed capacity will help in realising these.

Projects should consider their obligations under competition law before agreeing to share any information that could amount to commercially 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.

This criterion will be scored out of ten against the following scoring categories:

Score	Description
Low (1-2)	<ul style="list-style-type: none"> • Longer term plans are at an early concept phase, with little to no credible evidence demonstrating how the proposed Project and its longer-term ambitions could enable the development of a Hydrogen Economy. • Low confidence in the Project’s ability to deliver innovation, meaningful learnings and cost reductions. • Little or no willingness to share information.
Medium – Low (3-4)	<ul style="list-style-type: none"> • Limited demonstration of progress to date on longer term plans. Proposal partially demonstrates how the initial Project, and its longer-term ambition could enable the development of a Hydrogen Economy. • Some confidence in the Project’s ability to deliver innovation, meaningful learnings and cost reductions. • Some willingness and/or commitment(s) to share information.
Medium (5-6)	<ul style="list-style-type: none"> • Information provided for longer term plans indicate reasonable progress. • Reasonable level of credible evidence demonstrating how the Project’s initial phase and the longer-term ambition will enable the development of a Hydrogen Economy. • Good confidence in the Project’s ability to deliver innovation, meaningful learnings and cost reductions. • Moderate commitment(s) to share information.
Medium-High (7-8)	<ul style="list-style-type: none"> • Information setting out longer term ambition indicates good progress and plans are well thought through. • Good demonstration of how the Project’s initial phase and the longer-term ambition will enable a range of factors to help develop a Hydrogen Economy.

	<ul style="list-style-type: none"> • Good confidence in the Project’s ability to deliver substantial innovation, meaningful learnings and cost reductions. • Strong commitment(s) to share information.
High (9-10)	<ul style="list-style-type: none"> • Information on longer term ambitions demonstrates comprehensive plans and shows significant progress to date. • The proposal provides a robust and highly credible evidence base demonstrating its specific role in enabling a range of factors to develop a Hydrogen Economy. • High confidence in the Project’s ability to deliver substantial innovation, meaningful learnings and cost reductions. • Very strong commitment(s) to share information.

Submission requirements

1. Completion of Section 9 within the Project Application Form
2. Complete Annexes:
 - a. None
3. Mandatory supporting information, including:
 - a. None
4. Supporting evidence allowed. Examples include:
 - Strategic agreements / letters of support
 - Market engagements
 - Replication strategy
 - Cost reduction philosophy
 - Strategic supply agreements

4.2.6 Additionality of Electricity Source

To ensure that hydrogen production avoids negative impacts on wider decarbonisation, specifically power sector decarbonisation, additionality of electricity source is an important consideration in evaluating Projects. This requirement is for hydrogen production to be delivered by new low carbon generation, ensuring that low carbon electricity is not diverted from other users. The purpose of this criterion is to uphold the additionality principles set out in the consultation response to the LCHS, which sought to incentivise, but does not mandate, an additionality requirement around electricity source for electrolytic projects.

Government understands from the feedback received via the Market Engagement exercise that 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. However, government does think it is important to include this criterion, to reflect its intention to support projects that maximise additional low carbon electricity generation and minimise diverting electricity from other grid users. This will offer lower emissions from a systems perspective and support deployment of new low carbon generation.

Projects will be assessed under this criterion against preferred energy source categories as listed below. The importance and priority of each energy source principle will be used to assess and score the criterion. The hierarchy of principles for how additionality of electricity sources should be provided, is as follows:

1. New purpose-built assets - Electricity provided by new/recently built low carbon generation assets, built (or partially built²³) without securing a government support contract (e.g. RO/CfD). For example, electricity that would not have existed/been available for the grid if not for the hydrogen production, meaning that it can be deemed additional and will not be diverting low carbon electricity from other users.
2. Curtailment of existing assets - Excess electricity which would have led to curtailment or been wasted if not consumed by the hydrogen producer.
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). For example, electricity that would not have existed/been available for the grid if not for the hydrogen production, meaning that it can be deemed additional and will not be diverting low carbon electricity from other users.
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). For example, electricity that would not have existed/been available for the grid if not for the hydrogen production, meaning that it can be deemed additional and will not be diverting low carbon electricity from other users.

In assessing against this criterion, Projects will be credited for providing clear and credible evidence, such as the following:

- a) Evidence to demonstrate that the intended electricity source will meet one of the four additionality principles set out above, for example details of a procurement plan

²³ In this context, the term “partially build” is used to describe new build, life extended or recommissioned assets which have been partially built for hydrogen production i.e. 30% of the total generation asset might be being built for hydrogen production, and the other 70% is to service the wider grid, or going to other users.

evidencing technical ability to utilise curtailed electricity through power purchase agreement or via contracts on the balancing mechanism.

- b) Percentage of the overall electricity supply that will be generated from additional regeneration.
- c) Confidence that the electricity source is deliverable (this will be through evidence provided in the Deliverability criterion), which includes:
 - i. Details of development stage, including delivery and technical evidence to demonstrate a credible plan for securing the additional electricity source by 2025.
 - ii. Details of all commercial and financial agreements, or demonstratable evidence these will be obtained to achieve a COD no later than 2025.
- d) Future details if additionality is planned post 2025.

To achieve the highest scores projects must have plans to meet additionality principles by COD and before 2025. Projects which are unable to demonstrate additionality at the COD date or by 2025 can still provide evidence to demonstrate credible future plans but will only be able to score a maximum of half of all marks for this criterion (i.e. score up to 5 marks). Projects that cannot demonstrate additionality, or do not submit a response, will score zero.

This criterion will be scored out of ten against the following scoring categories:

Score	Description
Low (1-2)	<ul style="list-style-type: none"> • Up to 20% of electricity source meets the Additionality principles • Low confidence in the Project's ability to meet Additionality principles upon deployment. • Little evidence provided in that sets out a credible plan for achieving additionality principles.
Medium – Low (3-4)	<ul style="list-style-type: none"> • Over 20% of electricity source meets the Additionality principles or Future Additionality of electricity source planned. • Some confidence in the Project's ability to meet Additionality principles upon deployment. • Some evidence provided that sets out a credible plan for achieving additionality principles.
Medium (5-6)	<ul style="list-style-type: none"> • Over 40% of electricity source meets the Additionality principles • Minimum required confidence in Project's ability to meet additionality principles upon deployment. • Reasonable level of credible evidence provided that sets out a reasonable quality and credible plan for achieving additionality principles.
Medium-High (7-8)	<ul style="list-style-type: none"> • Over 60% of the total electricity source that meets the Additionality principles • Good confidence in the Project's ability to meet Additionality principles upon deployment. • Good demonstration of credible evidence provided that set outs a quality and credible plan for achieving additionality principles.
High	<ul style="list-style-type: none"> • Over 80% of the total electricity source meets the Additionality principles

(9-10)	<ul style="list-style-type: none"> • Very high confidence in the Project’s ability to meet Additionality principles upon deployment. • Strong demonstration of credible evidence provided that set outs a high quality and credible plan for achieving additionality principles.
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Submission requirements

- 1) Completion of Section 10 within the Project Application Form
- 2) Complete Annexes:
 - a. None
- 3) Mandatory information, including:
 - a. None
- 4) Supporting evidence allowed. Examples include:
 - Details of the assets including capacities
 - Schedules for delivery
 - Levels of existing curtailment

4.2.7 Supplementary questions

Projects will be asked to provide supplementary information in the Project Application Form 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 will help to streamline the Agreeing an Offer stage.

Total Emissions Reduction

Government requests information on the total emissions reduction impact of a plant up until 2040, to understand the extent to which a Project can make a positive contribution to the UK’s efforts to meet its net zero commitments. Total emissions reduced will be considered using an average of CO₂e emissions reduced per annum over the length of the plant’s first 15 years of operation, however the volume of hydrogen produced over this time will be assumed to be the same as the volume operational by 2025. To calculate this, Projects will be asked to provide quantitative hydrogen production and offtake profiles, and details on what high carbon counterfactual their offtakers will be replacing by using low carbon hydrogen. This will allow government to assess the overall decarbonisation impact of a hydrogen Project.

The average total emissions reduction will be calculated as follows:

$$\text{Average total emissions reduction (Mt CO}_2\text{e/year)} = (d - E_T) * e$$

Where:

d = CO₂e intensity associated with fuels displaced in end use sectors (g CO₂e/kgH₂)

e = annual hydrogen production, measured annual average over 15 years (kgH₂)

E_T = Total emissions (g CO_{2e} /kgH₂)

Projects will need to complete Emissions Reduction Template (Annex E) where they will need to provide:

- The CO_{2e} emissions intensity associated with the production of hydrogen as reported in the Hydrogen Emissions Calculator already completed under the Carbon Emissions and Wider Environmental Factors criteria. This includes upstream emissions of various sources of electricity generation. This should include direct and indirect emissions associated with compressions/ pumping/ liquefaction and any other associated operations such as storage. This should include an explanatory note setting out how these emissions and energy consumption data have been determined, and the process by which the emissions and energy consumption are designed to be as low as reasonably possible.
- The thermal and electrical conversion efficiency of the plant
- The expected output of the plant and expected hydrogen demand from offtakers
- The emissions associated with counterfactual fuel(s) being displaced by offtakers of hydrogen
- The emissions reduction calculations will be done using the information submitted in the Emissions Reduction Template (Annex E).

Submission requirements

- 1) Completion of Section 11 within the Project Application Form
- 2) Complete Annexes:
 - a. Annex E – Emissions Reduction Template
- 3) Mandatory supporting information, including:
 - a. None
- 4) Supporting evidence allowed. Examples include:
 - a. None

4.3 Shortlisting projects

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 negotiations breaking down.

Government will then step back to consider how the shortlist of projects perform in combination, to consider the appropriate portfolio of electrolytic projects. 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 the Government's objectives for this allocation round. 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 will be used in limited circumstances if 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 low carbon electrolytic projects in construction or operation by 2025.

Government may consider the following portfolio factors:

- Location – government recognises the role that the 2022 HBM/ NZHF Electrolytic Allocation Round can play in ensuring electrolytic 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 aim to deploy 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 end use and electricity source/operating model²⁴ – government’s first Electrolytic Allocation Round aims to kickstart the electrolytic 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 on offtake
 - Limited diversity in energy source
 - Limited resilience to supply/demand interruptions (e.g. lack of storage or grid back up)

²⁴ 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

Government will also conduct integration checks at the shortlisting stage, to ensure the portfolio of projects are additional to one another. These checks may include consideration of:

1. Offtake: e.g. that total hydrogen supply to a single offtaker is not significantly higher than the offtaker needs
2. electricity supply: The same renewable energy source does not supply multiple projects, adding up to a significantly higher electricity need than what is produced
3. "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. This integration score will take into account several factors including:

- Whether offtake or supply could accommodate each project
- 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

Section 5: Agreeing an Offer Stage and Award of Contracts

Following evaluation and possible application of portfolio factors and an integration check, shortlisted projects will take part in a process to agree an offer of HBM support and, if required, CAPEX support through the NZHF.

Projects are reminded that government is continuing to develop the processes applicable to the Agreeing an Offer stage. In particular, 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.

5.1 Outline

After the evaluation of submissions and shortlisting, selected projects will enter a process to agree an offer, which will include due diligence, a value for money assessment, and engagement with government with the aim to agree an offer of support through a Low Carbon Hydrogen Agreement (LCHA) and, where required, CAPEX grant through the NZHF. Entering this phase of the process does not mean that any funding or contract will be awarded

Shortlisted Projects will engage with government on a variety of financial, legal, technical and commercial issues such as progress according to the project timeline submitted at application stage, and discussing any issues or concerns highlighted during the assessments.

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 that FEED is at an advanced stage and that they are committed to optimising the design of their Projects;
- to move forward with all the regulatory processes and consents needed to realise their Projects;
- to agree a programme of work through to FID, taking account of government processes;
- to share new information across a wide range of issues, including the management of risk; and
- to respond to requests for information from advisers as due diligence and value for money assessment commences.

5.2 Objectives and Approach

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

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, their FID and COD, the LCOH, 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 and awarding HBM support contracts at the earliest opportunity.

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 majority of provisions 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 negotiations that is grounded in the successful precedents of the CfD models. These fixed components of the contract will reflect the fundamental tenets of the HBM that have been described in this and previous publications and are being discussed extensively with stakeholders through expert groups and workshops.

Having considered both the size and composition of the projects in the pipeline information gathered during the Market Engagement exercise, government believes that it is proportionate and sensible to subdivide the shortlist of projects into two or more groups to ensure that government is using time and resources in a manner that allows both the prudential management of risk and expeditious delivery.

This would mean that where projects possess risks and uncertainties that present a greater risk to their delivery and thus to the delivery of the programme, such projects would enter a pathway to agreeing an offer involving an enhanced level of due diligence and interaction to ensure that these risks and uncertainties are properly assessed and understood. Such a pathway would by its nature be iterative and resource intensive, and so to avoid unnecessary delay to delivery, for projects where the risks are assessed as being insufficiently probable and/or impactful to require this enhanced scrutiny, they would enter a pathway to agreeing an offer more appropriate to their risk, which may

enable awards of funding to such projects to be made sooner than if all projects were in the same pathway.

This will meet the Government's strategic objective of enabling projects to deploy at scale at the earliest opportunity. For the avoidance of doubt, where government's understanding of the risk of project changes, government reserves the right to move projects between pathways to ensure that the level of scrutiny and interaction remains proportionate. This may result in projects moving to pathways that represent a higher or lower level of scrutiny and interaction to that which they originally entered.

The decision on whether a project is allocated to a particular pathway is anticipated to be taken by government by reference to factors including, but not limited to, the size (capacity or hydrogen production volume) of the Projects, their FID and COD, the LCOH, the deliverability score, the project's ranking at the evaluation stage and the operating and business models (including the electricity supply and the end user).

Government reserves the right:

- in order to maintain a competitive tension throughout the process, to invite a number of Projects to participate in this stage representing a total subsidy spending in excess of the funding envelope;
- 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 expressed interest;
- portfolio factors; and
- integration checks.

5.3 Invitation to enter the Agreeing an Offer stage

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 that the project represents value for money and is deliverable. That invitation will set out:

- the relevant pathway to the Agreeing an Offer stage selected for the Project, including a description of the bidding 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.

5.4 Structure of the Agreeing an Offer stage

The shortlist of projects may be further sub-divided into two or more pathways by considering factors such as the number of projects and the makeup of the shortlist. The decision on whether a Submission is allocated to a particular pathway is anticipated to be taken by reference to factors including but not limited to the size (capacity or volume) of the projects, their FID and COD, the LCOH, the deliverability score, the project's ranking at the evaluation stage and the operating and business models.

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 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; and
- to move Projects between groups and pathways if there are changes in circumstances.

The Government reserves the right to apply different methodologies under the different pathways to determine the CAPEX grant funding intensity and to set the strike price and other negotiable areas, and for the different pathways to have separate funding envelopes.

Government reserves the right to have a different scope of negotiations between the different pathways. Further details of the scope of any negotiations will be communicated in the invitation to participate in the Agreeing an Offer stage.

5.5 CAPEX grant/HBM strike price interaction

The maximum grant funding intensity level (CAPEX %) for this allocation round is set at 20%. Projects will be able to apply for a CAPEX % below 20% of the CAPEX that falls within the NZHF Scope (excluding CAPEX costs for storage and transport).

The offer to the Projects will include both Strike Price and, where required, a CAPEX grant amount. As the HBM will only allow the inclusion of capex which has not been funded by the

CAPEX grant, Projects which have received a CAPEX grant will necessarily have lower Strike Prices than if they had not received a CAPEX grant. The value for money assessment of submissions will take into consideration the subsidy amounts from both the NZHF and the HBM support schemes.

Whilst some respondents indicated via the Market Engagement exercise that the grant funding intensity level should be higher for this first allocation round, only 25.7% of those who provided a written response explicitly disagreed that 20% CAPEX co-funding alongside HBM support would be sufficient to enable electrolytic projects to take FID. Government believes this 20% CAPEX support alongside HBM support will enable electrolytic projects to take FID, whilst remaining within the NZHF's affordability envelope.

Government aims to finalise the hydrogen business model in 2022, enabling the first contracts to be allocated from 2023. This means that, following the assessment stage, shortlisted projects will enter in the Agreeing an Offer stage, as governments expects the majority of proposed terms in the Low Carbon Hydrogen Agreement to be publicly available at this time, allowing projects to assess the remaining risks of the projects and request an appropriate level of support.

Government reserves the right to set the grant funding intensity, by considering the NZHF envelope and the total size of CAPEX grant requested by shortlisted projects, with a view to optimizing value for money for the taxpayer, while ensuring the additionality of public funding.

5.6 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.

The process of agreeing a joint support offer through the Low Carbon Hydrogen Agreement (LCHA) and, where required, CAPEX grant will be iterative. The process will be concluded by a request for "BAFO Submissions". Government reserves the right to have multiple rounds of negotiations.

Government reserves the right to discontinue negotiations 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; the portfolio factor process may also be applied at this point.

5.7 Announcement of selection decision

Following the evaluation of BAFO Submissions, government intends to announce the list of Projects it intends 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.

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 pre-contract signature requirements (e.g., obtaining any necessary planning and environmental consents, grid connection); and
- Projects agreeing final terms with government

Projects that were shortlisted following the evaluation stage but are not selected may be placed on a reserve list and will be invited to apply to the following round of electrolytic allocation.

Appendix A

Hydrogen, Greenhouse Gas Removals, Carbon Capture Utilisation and Storage, and Bioenergy innovation projects - Signposting to environmental considerations and regulations

If you are developing or implementing a Hydrogen, Greenhouse Gas Removals, Carbon Capture, Utilisation and Storage **innovation or bioenergy 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](#) 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

[customer service line 03708 506 506](tel:03708506506)

[gov.uk/environment-agency](https://www.gov.uk/environment-agency)

be discussed and agreed prior to providing detailed regulatory advice. Further details of our pre-application advice service [here](#).

Examples of guidance for specific Environment Agency regulation of relevance

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 Risk assessments for specific activities: environmental permits For further guidance on exemption for R&D projects, contact the relevant environmental regulator
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 Environmental Risk Assessment for Carbon Capture and Storage
Hydrogen Production and Use	<ul style="list-style-type: none"> Inorganic chemicals sector: additional guidance Guidance in development for hydrogen production from methane/RFG with CCS is available on request. We are in the process of developing other guidance to support hydrogen production and use. Please refer to the environment agency website 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 <i>(Think very carefully about potential waste status of each output and check guidance)</i>	<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 <i>(e.g. biochar, enhanced weathering)</i>	<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

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

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

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