Department for Business, Energy & Industrial Strategy

NET ZERO INNOVATION PORTFOLIO

Proposed Industrial Hydrogen Accelerator (IHA) competition

Engagement Event

8th March 2022

Welcome, objectives and purpose

Purpose:

- To raise awareness of the proposed Industrial Hydrogen Accelerator competition before competition opening
- To gather feedback on the draft competition design to ensure it meets market needs

Introduce Energy Innovation at BEIS

Outline the proposed Industrial Hydrogen Accelerator innovation competition

Collect feedback on the draft competition design

Outline the next steps

BEIS ENERGY INNOVATION: OVERVIEW

Dr Mark Taylor

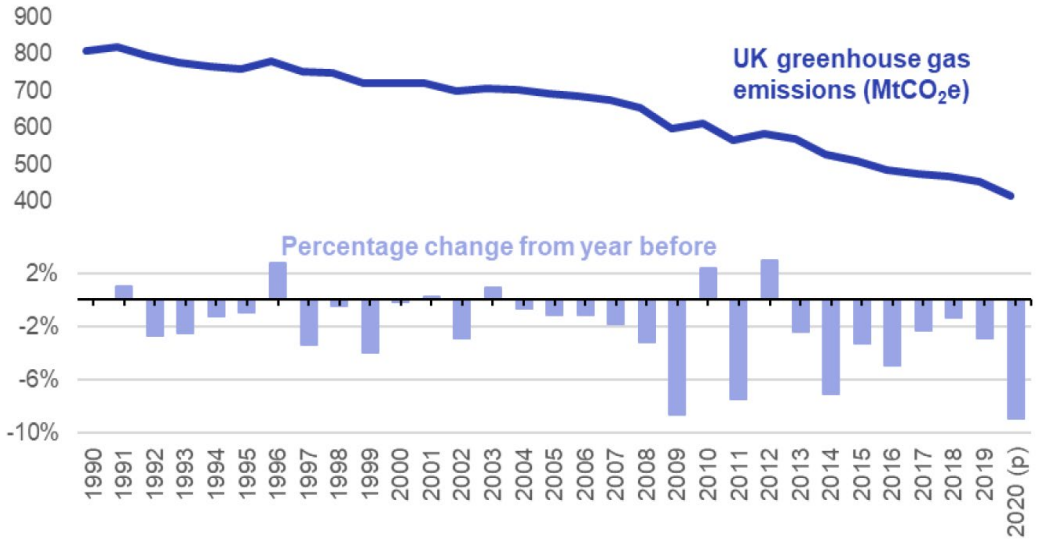
Deputy Director for Energy Innovation - Delivery

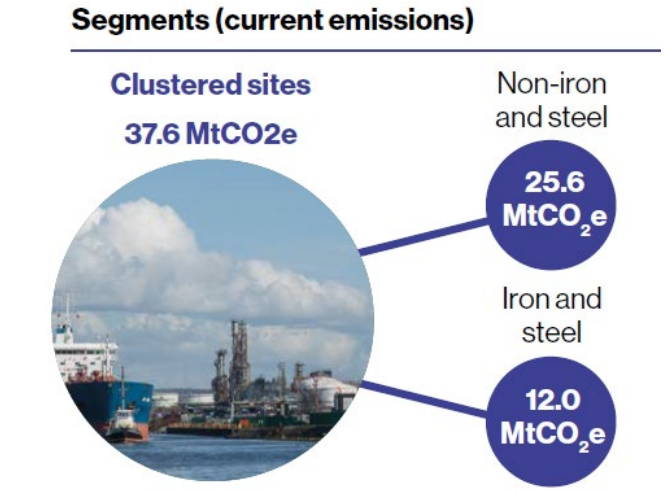
Science and Innovation for Climate and Energy

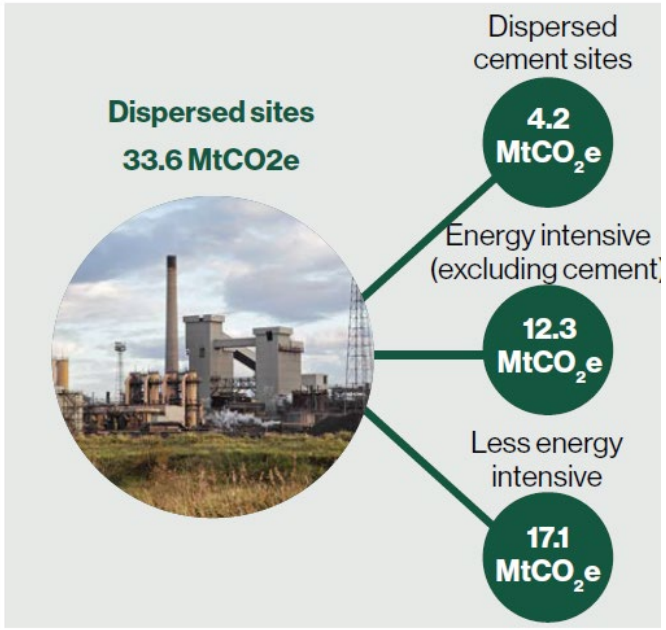
BEIS

The Net Zero Challenge

The UK passed into law to bring its GHG emissions to net zero by 2050. In 2020 we effectively brought forward the original 2050 (78% reduction) target by 15 years (Sixth Carbon Budget)



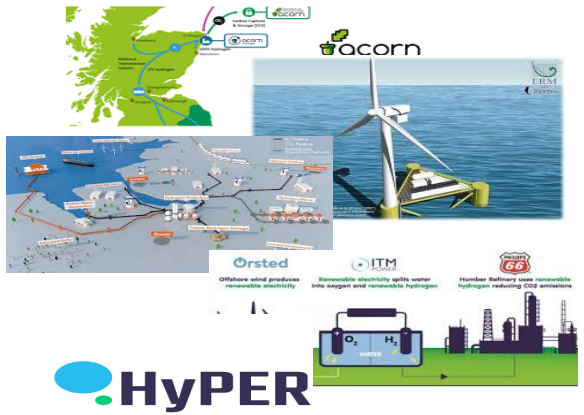




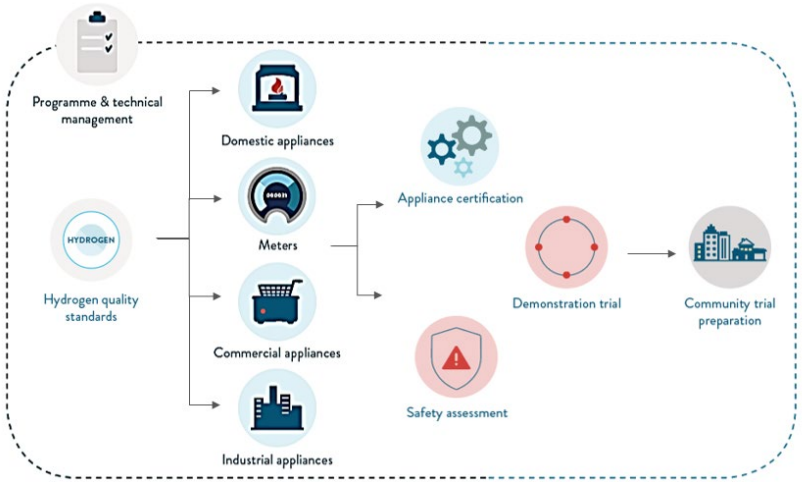
Industrial sectors combined produce around 16% (72 $MtCO_2e$) of UK emissions (BEIS IDS 2021[1]), and are challenging to mitigate.

1 BEIS Industrial Decarbonisation Strategy 2021, based on BEIS, Final UK greenhouse gas emissions from national statistics: 1990 to 2018: Supplementary tables, 2020.

Energy Innovation Portfolio support for hydrogen (2015-2021)



£33m Low Carbon Hydrogen Supply



£25m Hy4Heat

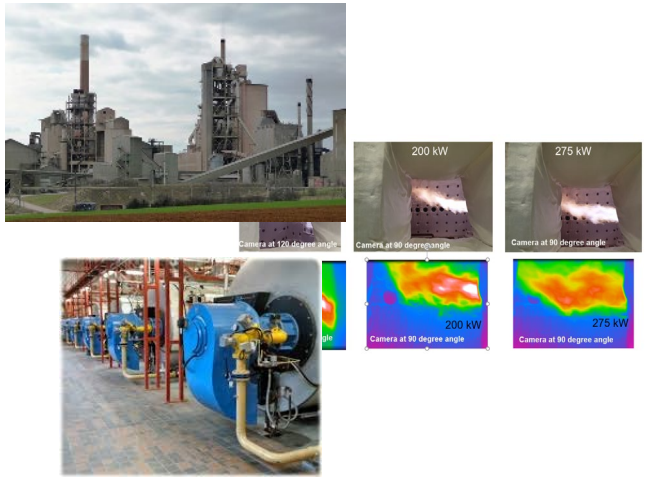
Storage

Production

Transmission

Distribution

End-use



£20m Industrial Fuel Switching

Low Carbon Hydrogen Supply 1 Competition (1/2)

HS1 has been instrumental in enabling the current ambitious hydrogen agenda

Phase 1: £5m Feasibility studies

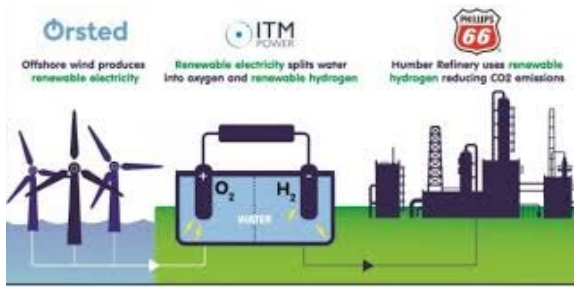
Phase 2: £27m Demonstration

5 demonstration projects were funded and 4 of the final reports have now been published on the website

HyNet (£7.5m)

A FEED study to develop a 300MW methane reformer based on Johnson Matthey gas heated reformer technology.

HyNet have gone on to form a joint venture with Essar.



Gigastack (£7.5m)

Develop detailed plans to produce hydrogen via electrolysis from Orsted Hornsea Windfarm using a new ultra-low cost 5MW electrolyser stack, with the intent to supply this to Phillips 66's Humber Refinery in the future. In addition, work on semi-automation of electrolyser manufacture.

Low Carbon Hydrogen Supply 1 Competition (2/2)

Dolphyn (£3.1m)

Detailed designs for a floating semi-submersible platform with integrated wind turbine, desalination facilities and PEM electrolysis, ready for final investment decision.

The Engineer award for Overall Innovation Project of the Year: 2020.

HyPER

HyPER (£7.4m)

Developing new process to offer low carbon hydrogen production (via sorbent enhanced steam reforming) with integrated CO_2 separation suitable for transport, utilisation and storage.

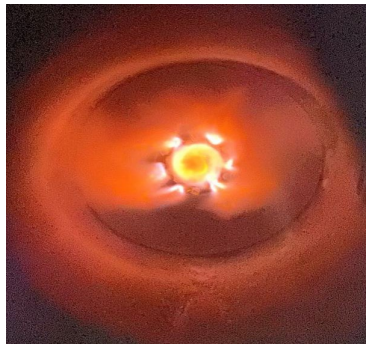
acorn H_2 Pale Blue Dot.

Acorn Hydrogen (£2.7m)

Create a replicable process for clean hydrogen production based around Johnson Matthey's Low Carbon Hydrogen technology, in North East Scotland's existing energy supply chain.

Acorn recently received a strategic investment by Macquarie Group.

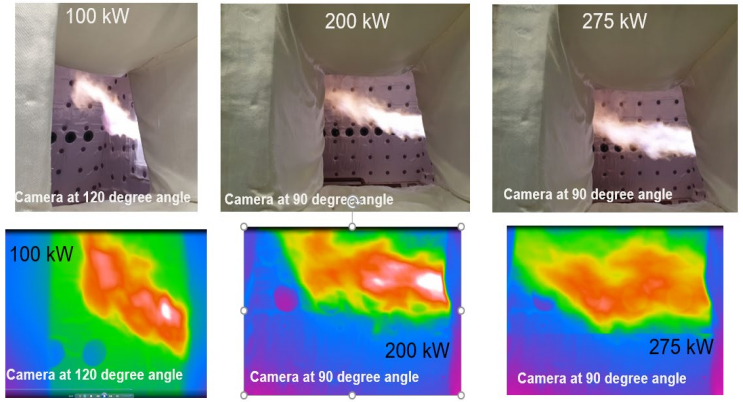
Industrial Fuel Switching Competition (2015 -2021)



HyNet – hydrogen trials including glass furnace and industrial boiler

British Lime Association (BLA) – investigating using hydrogen as a fuel in a lime kiln

£20m: Testing the potential of industry to switch to low carbon fuels. Supporting:
7 Feasibility Studies
4 Demonstrations



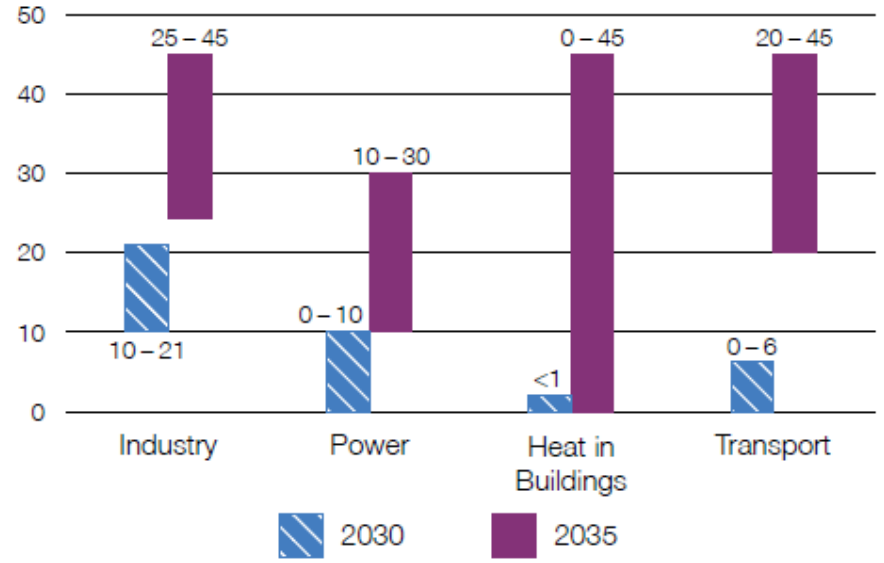
Glass Futures – researching low carbon fuels, including hydrogen, in glass furnaces

Mineral Products Association (MPA) - how a combination of plasma, hydrogen & biofuels can decarbonise cement sector

What is now needed?

- **Hydrogen Supply 1 (EIP)** has developed innovative new pre-commercial generation technologies. Hydrogen supply 2, beginning delivery now, aims to demonstrate more developed hydrogen supply technologies and see them operating and producing hydrogen.
- **Industrial Fuel Switching 1 (EIP)** demonstrated the use of hydrogen in some industrial applications, but short timeframe trials with tube trailered grey hydrogen.
- To reach our ambition of **5GW hydrogen production by 2030, around 50% of which is estimated to be used in industry**, we will need to demonstrate more complete end-to-end hydrogen fuel switching projects in industry to **prove the full system feasibility and viability**.

Figure 2.4: Illustrative hydrogen demand in 2030 and 2035



Source: BEIS analysis (see analytical annex). Note: figures do not include blending into the gas grid.

Proposed Industrial Hydrogen Accelerator: OVERVIEW

Antonia Mattos

Hydrogen Innovation Programme Manager

Science and Innovation for Climate and Energy

BEIS

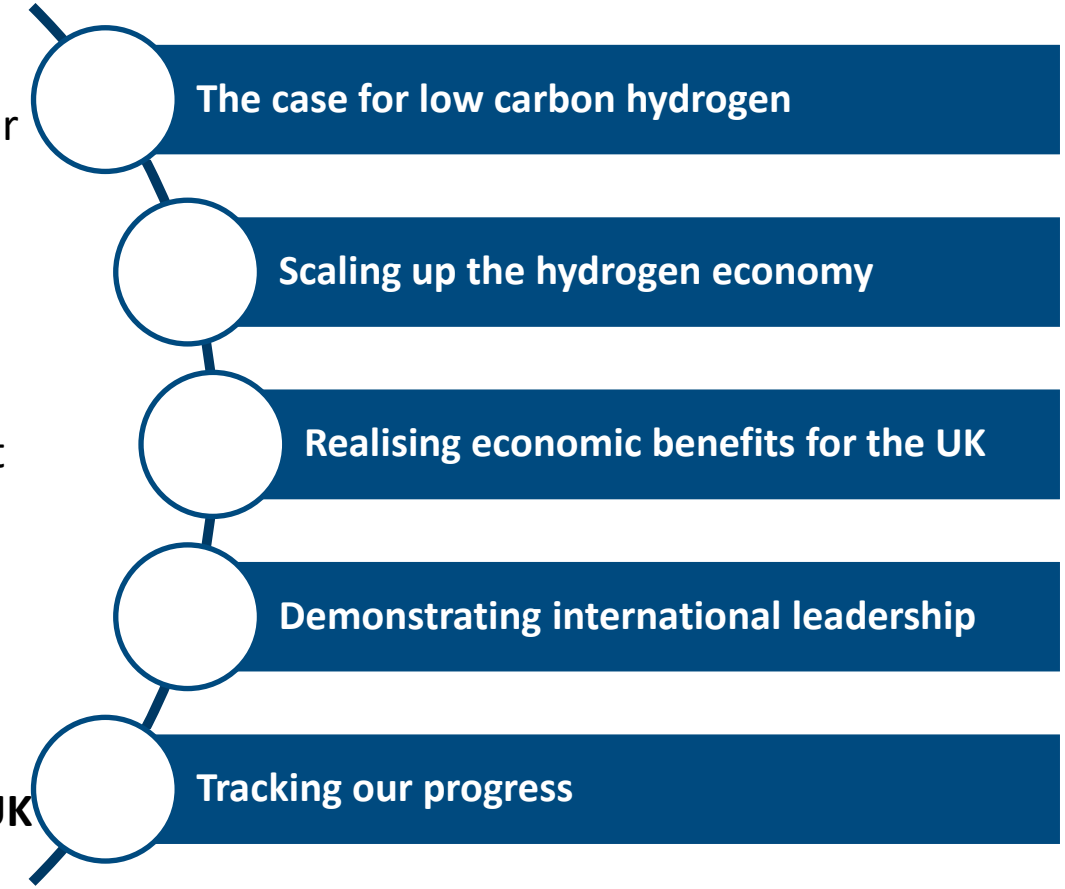
Department for Business, Energy & Industrial Strategy

UK Hydrogen Strategy: developing & scaling up a UK hydrogen economy

*First ever UK Hydrogen Strategy focuses on **driving progress to scale up hydrogen economy in 2020s**, to deliver 5GW production ambition by 2030 and position low carbon hydrogen to help meet Carbon Budget 6 and Net Zero commitments.*

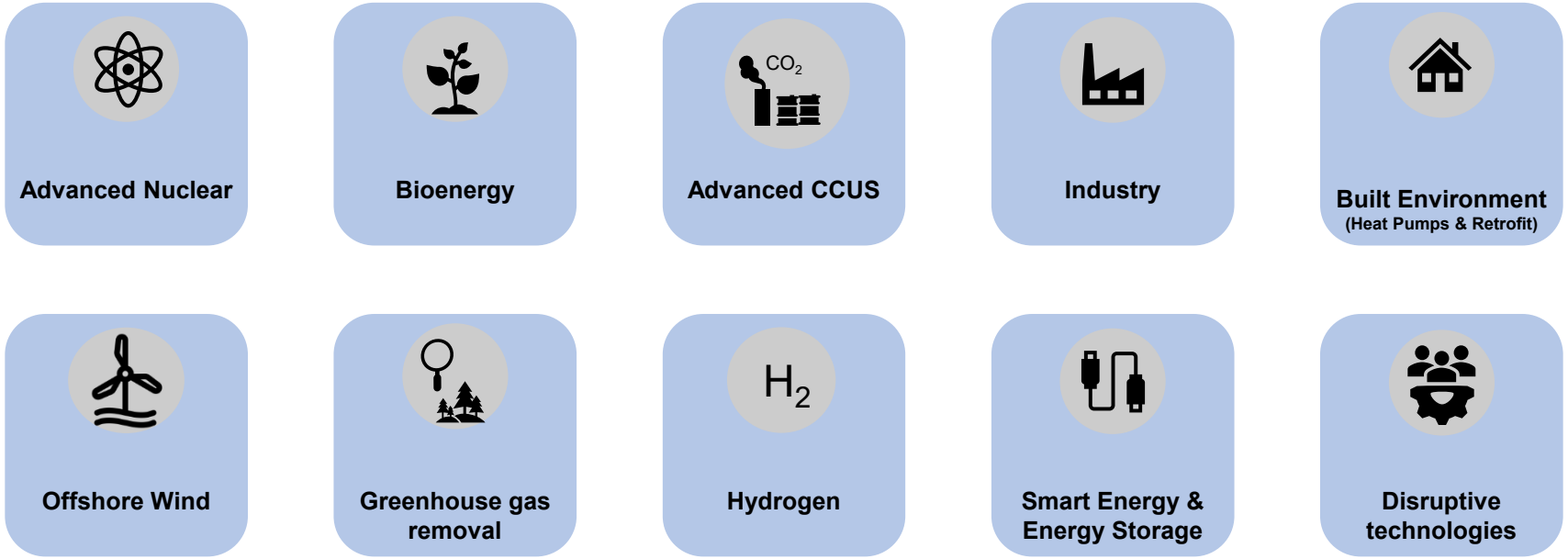
Key elements:

- Sets out up to **£1bn in UK Govt support** for hydrogen and other low carbon technologies, including **over £400m for hydrogen**.
- **Consultations** on support for **hydrogen production:**
  - **Hydrogen Business Model** to provide revenue support
  - **£240m Net Zero Hydrogen Fund** for capital co-investment
  - A **UK standard for low carbon hydrogen**.
- Sets out innovation and demonstration funding for hydrogen applications across **industry**, **power**, **heat** and **transport**.
- Seeks to secure **economic opportunities** from outset – **9,000 UK jobs** & **£900m GVA by 2030**, unlocking **£4bn investment.**



BEIS Net Zero Innovation Portfolio (NZIP)

- **£1bn** of funding for **innovation** over **4 years** (2021 – 2025)
- Themes as per the Prime Minister's "Ten Point Plan for a **Green Industrial Revolution**"



BEIS Competitions and funding for hydrogen and industry - summary

BEIS NZIP Innovation Competitions (SICE):

- £60m Low Carbon Hydrogen Supply 2 competition – closed
- Hydrogen BECCS Innovation - closes 11/03/22
- £55m Industrial Fuel Switching 2 (IFS) – phase 2 opens Autumn 2022.
- £10m Industrial Energy Efficiency Accelerator (IEEA)
- Industry of Future (IFP)
- £40m Red Diesel Replacement (RDR) – phase 2 opens 2023
- £10m Green Distilleries Competition - closed
- £19.5m CCUS Innovation 2.0 competition - Call 2 aims to open May 2022
- £67m Longer Duration Energy Storage competition (LODES) - closed
- Energy Entrepreneurs Fund

Generally aimed at mid-TRL technologies which need support for development and demonstration.

Wider BEIS support:

- £240m Net Zero Hydrogen Fund (NZHF)
- Phase 2 of the £289 million Industrial Energy Transformation Fund (IETF) and Scottish Industrial Energy Transformation Fund (SIETF)
- Industrial Strategy Challenge fund (ISCF) and £170m Industrial decarbonisation challenge (UKRI led)
- Support for world-leading trials of hydrogen for heating, including a hydrogen neighbourhood trial by 2023
- CCS Infrastructure Fund
- Industrial CCUS business model
- Hydrogen business model

Generally aimed at supporting the deployment of higher TRL technologies.

How you participate today

Join at slido.com
#IHA_feedback

- **MS Teams Live** will continue to be used for the main presentation
- **Sli.do for feedback and comments:** We will be using Sli.do for collecting participant feedback on the programme design in your internet browser. You will be invited to identify your sector, but your name will not be displayed next to your comments.
- **Questions:** Any questions on the content of the slides can be asked in the MS Teams Q&A function. Click the two speech bubbles. These should be only about the IHA and focussed on the content of todays presentation. We will publish an FAQ document on the IHA website with any key questions that would be helpful for participants to know the answer to now. However, at this stage we will **not** answer questions where:
  - The information is not yet public (e.g. the competition budget) or not finalised
  - The information will be in the competition guidance
  - Questions that are not directly relevant to the programme (e.g. about energy prices or wider policy)

  Once the competition guidance is published clarification questions can be submitted.
- **Slides:** The slides from this event will be published on the IHA website this week.
- **Email:** send any written feedback on the competition design to nzip.hydrogen@beis.gov.uk by 18th March

Proposed Industrial Hydrogen Accelerator context

- Net Zero by 2050 requires industry to almost entirely decarbonise, and a key option is using low carbon hydrogen in place of fossil fuels.
- However, **low carbon hydrogen fuel switching has not been deployed in UK industrial facilities at scale, so there are significant technical uncertainties and system risks** to be overcome, in addition to commercial barriers.
- Complete end-to-end projects **must be demonstrated before the first wave of large low carbon hydrogen production projects come online from the mid-2020s.** Industry is a key offtake for many of the large hydrogen production projects, but hydrogen supply is a barrier to RD&D.

The Industrial Hydrogen Accelerator (IHA) is an **innovation** programme funding the **demonstration of end-to-end industrial fuel switching to hydrogen,** between April 2022 and March 2025.

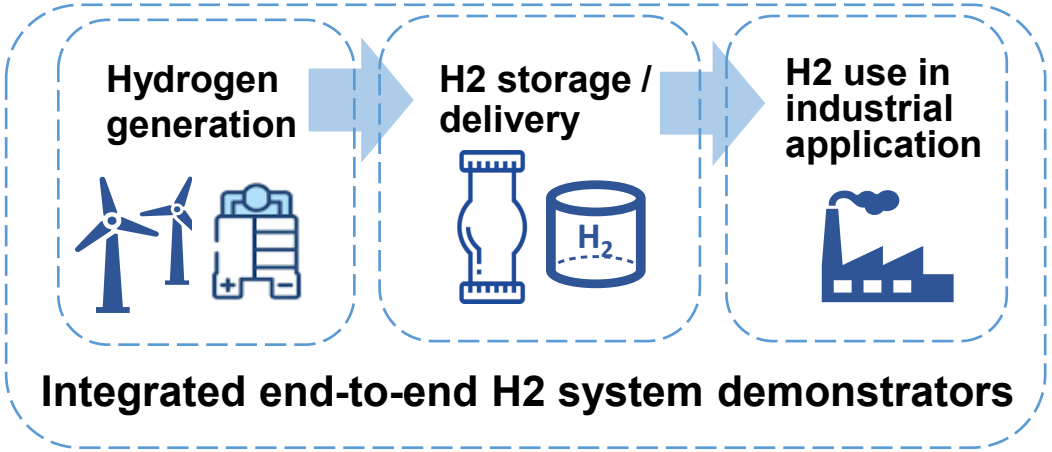
The IHA would provide knowledge and blueprints to work from, and ensure that hydrogen is a feasible and viable solution for industry to deploy from 2025, supporting the 2030 5GW ambition.

Proposed Industrial Hydrogen Accelerator Summary

- The BEIS Industrial Hydrogen Accelerator (IHA) is a proposed innovation programme funding the demonstration of end-to-end industrial fuel switching to hydrogen. The competition would include the full technology chain, **from hydrogen generation and fuel delivery through to industrial end-use**, in a single project.

- We aim to **open for applications late-April 2022** and projects must be complete by March 2025.

- The aim is to improve understanding of how to **design, implement and deliver an industrial hydrogen solution**, as well as proving the feasibility and providing evidence on the real-world cost and performance.



Scope:

- Projects must include end-to-end system
- Low carbon hydrogen
- H2 use in industrial application
- Innovative solutions

Industrial Hydrogen Accelerator Objectives

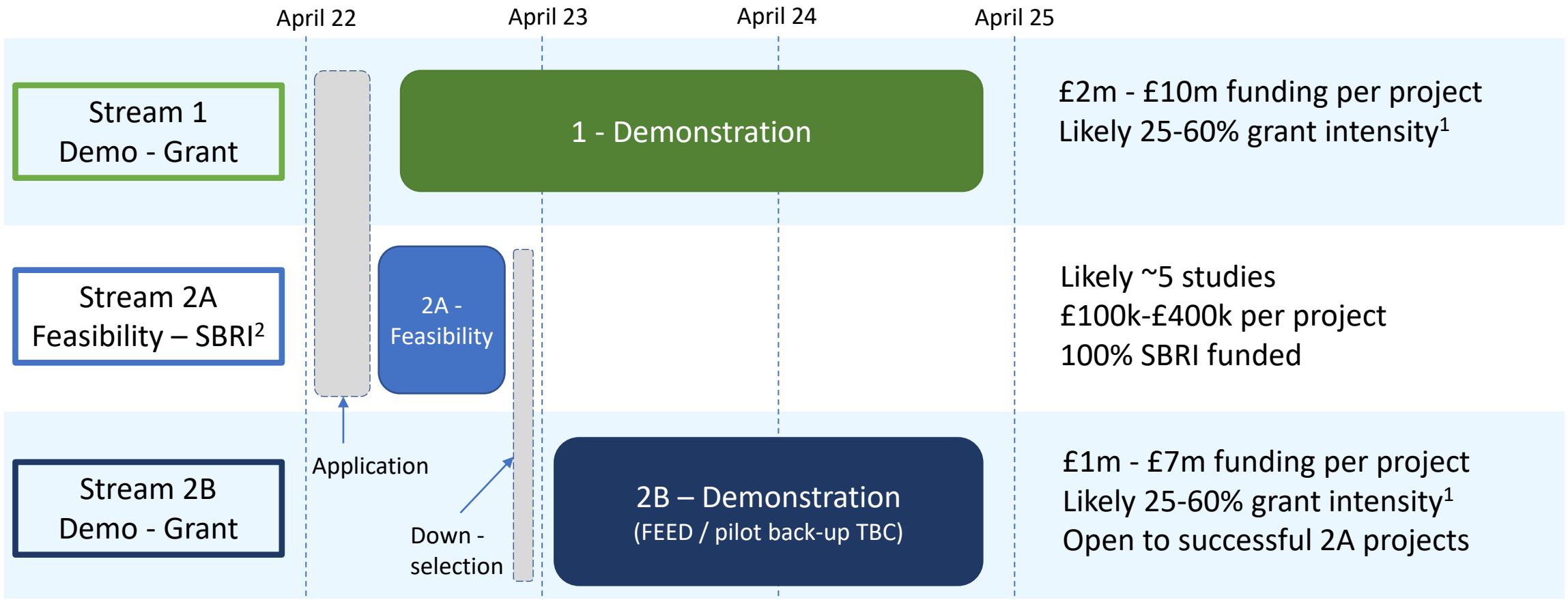
1. **Improve understanding of how to design, implement and deliver a hydrogen solution** on specific industrial sites, through the completion of ~**5 feasibility reports** by early 2023.

2. **Prove the feasibility** and provide evidence towards the cost effectiveness **of hydrogen fuel switching,** through successful demonstration of **end-to-end systems** in industrial processes, by March 2025.

3. **Develop stakeholder knowledge, confidence and awareness of hydrogen end-to-end system solutions in industry**.

4. **Facilitate the development of new commercial relationships and build market awareness of industry actors, in order to remove co-ordination barriers in the hydrogen market**.

Proposed Industrial Hydrogen Accelerator (Draft)



1 Grant intensity depends on the type of project, type of organisation and level of collaboration/knowledge sharing
2 SBRI, or Small Business Research Initiative - 100% of eligible costs are paid

IHA Proposed Timeline (subject to change)

Activity		Date
Stream 1 (Demonstration)	Open to Applicants	Late April 2022
	Closes to Applicants	July 2022
	Projects Start	October 2022
	Projects Complete	February 2025
Stream 2A (Feasibility)	Open to Applicants	Late April 2022
	Closes to Applicants	June 2022
	Projects Start	Aug/Sept 2022
	Projects Complete	January 2023
Stream 2B (Demonstration)	Applications	Dec 22 – Feb 23
	Award and start	April 2023
	Projects complete	February 2025

Application window:
8 weeks feasibility
12 weeks demo

~ 28 months for Stream 1 demonstrations

~5 months for feasibility studies

~23 months for Stream 2B demonstrations

Feedback on IHA overview and structure (1/4)

When giving feedback, please bear in mind:

- Our remit is to fund innovation projects
- We cannot change policy or the market conditions
- We cannot change the overall competition objectives
- We cannot change the overall competition budget (TBA)
- We cannot change the length of the competition - the funding period ends on 31st March 2025

We are particularly interested to hear any views on:

1. Do you have any comments on the high-level programme structure, including the SBRI and grants mixed funding route for Stream 2A and Stream 2B?
2. Bearing in mind the timeframes and project budgets outlined, do you have comments on the scale and types of projects feasible?
3. Comments on minimum/ maximum funding amount per project for all Streams.
4. Do you believe the competition should restrict access to Stream 2B, such that only Stream 2A participants may enter?

COMMERCIAL PROCUREMENT INFORMATION: OVERVIEW

Matilda Smith-Cornwall

BEIS Commercial Team

Science and Innovation for Climate and Energy

BEIS

Procurement Route

Stream 1 (Demonstration Projects)
Grant funding - approx. 25 – 60% of eligible project costs (see grant intensities), £2m - £10m[1] grant funding available per project, match funding required.

Stream 2A (Feasibility Studies)
SBRI funding - 100% of eligible project costs, minimum £100k, maximum £400k per project

Stream 2B (Demonstration Projects)
Grant funding - approx. 25 – 60% of eligible project costs (see grant intensities), £1m - £7m funding per project, match funding required. Currently considering having Stream 2B open only to 2A projects.

1 This £2m-£10 is the funding available from BEIS, with match funding on top of this to increase the total project budget. For example £10m at 40% grant intensity would be for a project maximum of £25m

SBRI - Stream 2A feasibility

What is an SBRI?

- Small Business Research Initiative (it is open to organisations of any size)
- Pre-commercial procurement – aimed at solutions which are not yet ready for the commercial market
- 100% of eligible costs must be funded by BEIS
- Sharing of risks and benefits – suppliers receive financial support and retain arising IP (certain rights of use retained by BEIS). SBRI contracts are therefore expected to be priced below market rates, with no element of profit, reflecting these benefits to the supplier
- To note: Only Stream 2A is in the form of an SBRI. Stream 1 & 2B are grants

Grants – Stream 1 and Stream 2B demos

- Stream 1 and Stream 2B (demonstration streams) will be delivered through grants. This means that <100% of the project costs will be funded, and the project team **must ensure match funding is in place.**
- A grant is a sum of money awarded to an organisation in anticipation of it being applied for an agreed purpose. IHA grant funding will be competed i.e. grant funding for which applications are invited and assessed against a pre-published set of criteria.
- We anticipate that the IHA competition will fund **experimental development activities** (see grant intensities slide for definition and grant intensities). Commercial operation, maintenance and further development costs for the developed demonstrators are out of the scope of this Competition.
- Detailed IP terms will be included in the Grant Funding Agreement. As an indicative summary, Background IP will remain the exclusive property of the Party owning it except where it is required for the exploitation of IPR Material. The Grant Recipient grants to the Authority a non-exclusive irrevocable and royalty-free, sub-licensable, worldwide licence to use the project reports and Key Knowledge Deliverables.

Grant Intensities for Stream 1 & 2B

Demonstration Projects – funding intensities			
Activity Type	**Basic Grant Intensity**	**Possible Uplifts**	**Total**
Experimental Development	25%	10% medium SME	35%
		20% small SME	45%
		15% relevant collaboration or information dissemination	40%
		25% medium SME & relevant collaboration or dissemination	50%
		35% small SME & relevant collaboration or dissemination	60%

We expect demonstration projects to fit under the Experimental Development Activity - "experimental development" means the acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills for the purpose of producing plans and arrangements or designs for new, altered or improved products, processes or services.

Grant intensity will likely be calculated at the partner level, by organisation.

BEIS reserves the right not to fund at the maximum allowable funding intensities.

Terms and Conditions

BEIS SBRI T&Cs are expected to form the basis of the Stream 2A contracts. We will **publish the final version of the T&Cs at the same time as the competition guidance.** The liability is up to £1 million. Any applications submitted on condition that T&Cs are amended will be effectively submitting a non-compliant application and will not be accepted.

BEIS Grant T&Cs are expected to form the basis of the Stream 1 and Stream 2B Grant Funding Agreements. We aim to share a draft version on the IHA website during March for feedback.

If you have questions about the T&Cs you can **ask them during the competition Q&A window.**
All Q&A raised during the ITT clarification period will be **anonymised and published on the competition website for Stream 1 & 2A and on Contracts Finder for Stream 2A.**

IHA Proposed Timeline (subject to change)

Activity		Date
Stream 1 (Demonstration)	Open to Applicants	Late April 2022
	Applicant clarification window (Q&A)	Late-April to May 2022
	BEIS Q&A response published	Late-May 2022
	Closes to Applicants	July 2022
	Results issued (award)	September 2022
	Projects Start	October 2022
	Projects Complete	February 2025
Stream 2A (Feasibility)	Open to Applicants (Q&A opens)	Late April 2022
	Closes to Applicants	June 2022
	Results and projects Start	Aug/Sept 2022
	Projects Complete	January 2023
Stream 2B (Demonstration)	Open to applications (Q&A opens)	December 2022
	Award and start	April 2023
	Projects Complete	February 2025

Application window:
8 weeks feasibility
12 weeks demo

Applicant window for clarification questions approx. 2 weeks

Provisional funding award:
Stream 1: September 2022
Stream 2A: August 2022

Advertising the Competition

- All Streams will be advertised via the .gov website for this competition at time of launch
- Stream 2a (SBRI) will also be advertised on the Contracts Finder website at time of launch
- Details for how to submit an application will be available at the time of competition launch

Feedback on IHA procurement (2/4)

When giving feedback, please bear in mind:

- Our remit is to fund innovation projects
- We cannot change policy or the market conditions
- We cannot change the overall competition objectives
- We cannot change the overall competition budget (TBA)
- We cannot change the length of the competition - the funding period ends on 31st March 2025

We are particularly interested to hear any views on:

5. Do you have any feedback on the SBRI and grant funding routes? In particular clarity of match funding requirements under grants.
6. Grant T&Cs, which will be shared on our website (Grant Funding Agreement GFA and Grant Offer Letter GOL) – no need to feed back now.

Break
(5 minutes)

Eligibility for Funding (1 of 3)

Item	Subject	Eligibility
1.	Technology and project scope [Demo streams]	• Projects must include hydrogen generation, hydrogen delivery infrastructure and industrial end-use in a robust chain as a single project. • The hydrogen generation technology must meet the Low Carbon Hydrogen Standard and confirm it can be operational and low carbon by February 2025. Other hydrogen carriers, such as ammonia, may be included, but must justify that their use is widely applicable to UK industry and compatible with a net zero future. • The core hydrogen end-use must be for industrial processes under industrial operational conditions (but these could be simulated at a pilot facility); >60% H2 generated in the demonstration project in the timeframe of this competition funding must be used for the core industrial application(s), but other offtakers are allowed (not funded).
2.	Innovation	Projects must be able to justify that the full solution/system and/or specific technologies within it are innovative and unproven prior to launch. This includes confirming that the system couldn't be bought and there is uncertainty over its success.

Eligibility for Funding (2 of 3)

Item	Subject	Eligibility
3.	Retrospective Work	BEIS is unable to fund retrospective work on projects
4.	Multiple applications and projects	• If multiple applications are submitted, the project/core innovation/system developed must be materially different in each application • All partners must be able to successfully deliver all projects, if necessary
5.	Project end date	Completion by each Stream end-date, including full demonstrator completion by February 2025
6.	Additionality	Evidence must be provided to show that innovation would not progress, or would progress at a much slower rate, without public funding
7.	Contract/grant size	Aligns with min/ max funding amounts for all streams (see other slides)
8.	Eligible project costs	SBRI feasibility funding (Stream 2A) only available for R&D activities of an innovative process, material, device, product, or service prior to commercialisation. See eligible costs slide for Stream 1 and 2B demo eligible costs scope.

Eligibility for Funding (3 of 3)

Item	Subject	Eligibility
9.	Risk benefit sharing [SBRI stream 2A only]	Projects receive financial support and retain any intellectual property generated, with certain rights of use retained by BEIS. Project outputs are expected to be shared widely and publicly and project teams are not permitted to include profit in the eligible project costs.
10.	Project lead and team	Applications must have a lead applicant, but may be delivered by a consortium. Demonstration streams 1 and 2B must be led by private organisations or research and technology organisations, and may not be led by universities or other non-commercial organisations[1].
11.	UK requirements	Projects can work with international partners, but over 50% of the project funded work must be conducted in the UK. Demonstrators must be conducted in the UK.

1 Stream 2A is an SBRI, so universities and other non-commercial organisations may lead an application, however they must demonstrate a credible and practical route to market, and cannot lead the subsequent Stream 2B application.

Technology Exclusions

The following are excluded from this competition:

1. Systems/solutions which are **already commercially** or widely deployed in the UK or elsewhere.
2. **Individual technologies** or components are not eligible to apply for the fund, only complete end-to-end solutions.
3. Hydrogen generation systems that cannot evidence their compliance with the low carbon hydrogen standard.
4. Hydrogen based **power generation** is not counted as an industrial application unless the generator / CHP is integral to the industrial site / process. Hydrogen-based power generation for grid export is not considered an industrial process.
5. End-use of hydrogen for **building space and hot water heating**, however large, is not considered an industrial process. Equally, use of hydrogen for district heating for building heat is also not considered an industrial process in this competition.
6. End-use of hydrogen for **transport** applications or other **mobile applications**, such as forklifts, is not considered an industrial process.
7. Projects focussed on energy and resource efficiency or fuel switching to electricity, biomass, waste or other **non-hydrogen based fuels** are excluded. Note that hydrogen fuel switching projects are still eligible and encouraged if they improve the energy/resource efficiency of the process.

IHA Scope of eligible costs – demo streams 1 & 2B

Scope of eligible costs - demo	Comments
Renewable electricity generation capex	In total up to a max 40% of the funding requested. Eligible costs exclude residual value of these assets at end of demo.
Electrical infrastructure, such as grid/direct wire connection	
Other energy inputs to H2 generation e.g. biogas generation	
Hydrogen generation Hydrogen storage Hydrogen delivery system Hydrogen end-use equipment	
Peripheral equipment and systems required for integration of components together and with industrial facility	Only those essential for the demonstrator
Opex associated with demonstration period only e.g. electricity costs and labour. We expect the trial period to be of the order 2 months.	No commercial operation opex

Note that eligible costs are those associated with the demonstration, not the commercial deployment of the project. For example, for a mature asset (e.g. wind turbine or standard TRL7+ electrolyser) used for the demonstration, the eligible cost is only the use of that asset for the purposes of the demonstration (i.e. excluding its residual value at the end of the demonstration). More guidance will be provided in the competition documents.

Possible Assessment criteria – 2A feasibility - DRAFT

Criteria	Sub-criteria	Weight	Sub-points
1 Innovative solution (10%)	Innovative solution	10%	Overview of end-to-end solution & benefits Appropriate – justify why H_2 is best solution for process Innovative – describe what is innovative & describe knowledge gain
2 Performance (25%)	a) Performance and feasibility	15%	Performance compared with current and alternatives Feasibility & credibility of solution and technical approach Applicability to wider industry and scalability Technology Development plan
	b) Cost of solution	10%	Cost of solution compared with current and alternatives
3 Social value (15%)	a) Emissions, environment and safety	10%	Emissions intensity and wider emissions reductions Environment (e.g. air quality, resource usage) and Safety
	b) Jobs, training and supply chain	5%	New business, jobs, and supply chain Skills, training and education
4 Project financing (25%)	a) Finance form	15%	Project costs – eligible, accurate, non-profit, realistic and innovation focussed Additionality of public funding Value for money and proposed use of assets post-demonstration
	b) Additionality & value for money	10%	
5 Project Delivery (25%)	a) Delivery plan, risk management, knowledge sharing	15%	Delivery plan – efficiency, deliverability, 2B plan Risk management, including dependency and mitigations Dissemination plans and knowledge sharing
	b) Skills and capabilities	10%	Skills and capabilities for 2A and 2B, including letters of support

Feedback on IHA scope & criteria (3/4)

When giving feedback, please bear in mind:

- Our remit is to fund innovation projects
- We cannot change policy or the market conditions
- We cannot change the overall competition objectives
- We cannot change the overall competition budget (TBA)
- We cannot extend the length of the competition - the funding period ends on 31st March 2025

We are particularly interested to hear any views on:

7. Do you have any comments on the programme scope and eligibility criteria?
8. Do you believe the assessment criteria are comprehensive and appropriately weighted to ensure applications are high-quality?
9. Do you foresee any major technical barriers to carrying out these innovation projects?

Stream 1 – indicative prior work & stage gate criteria

	Indicative expectations of work complete before Stream 1 Application (by July 2022)	**Indicative** Stream 1 stage gate criteria (Feb 2023) – would be determined on project by project basis
1	**Feasibility and demonstrator planning documents**: - Detailed technology and demonstrator costing and system performance - Project plan, including detailed work packages, resourcing & milestone payments - Detailed risk register, mitigation strategies and contingency planning - Assessment of technology commercialisation, roll-out and development plan	**Detailed mobilisation and demonstration planning documents**: - Updated project plan and evidence that delivery plan can achieve all objectives, including the demonstrator being operational by February 2025 - Updated detailed risk register, mitigation strategies and contingency planning - Updated assessment of technology commercialisation, roll-out and development plan - Benefits realisation and management plan
2	Front-end-engineering design (FEED) work planned and supplier in place	FEED work in advanced stages or complete
3	Confirmation that match funding can be provided and information on source.	Financial documentation, including evidence of leveraging at least the minimum private finance required
4	Draft supply chain relationships for key work packages, with evidence e.g. collaboration agreement, quotation and/or letters of support	HoT/final draft commercial contracts for key work packages and draft end-user commercial contracts if applicable. Formalisation of all key supply chain relationships
5	Early information on planning permission requirements and timelines	Evidence of planning permission/certificate of lawfulness obtained for build and operation of the demonstrator, or at minimum pre-application.
6	Initial discussions with DNO/other supplier on electricity supply/connection, where relevant, including timeframes and requirements	Electricity supply agreement in place where needed (e.g. formal grid connection offer or direct wire)
7	Initial discussions with hydrogen suppliers / equipment vendors, with letters of support confirming timelines	Hydrogen supply / equipment agreed (e.g. electrolyser production slot reserved and spec/delivery agreed)
8	Demonstrate understanding of permitting, environmental and safety considerations & requirements of project (Environment Agency, HSE & equivalents)	Relevant sign-off from HSE, Environment Agency and equivalents in devolved regions, or evidence of robust plan with pre-application
9	Consideration of use of assets post-demonstration and source of operational costs	Where other operational funding is desired, source identified & application submitted?

IHA - Future use of demonstration assets

Future use of demonstrator assets:

- We expect projects to explain the proposed use of the assets post-demonstration (e.g. operational deployment at industrial site, further RD&D uses, decommissioning).
- Value for money is a scoring criteria. Projects will score better if they will provide additional evidence on industrial use of hydrogen after the demonstration ends, either in long term industrial operation or in further RD&D. This not an eligibility criteria.

Operational costs (opex):

- This programme is an innovation fund, so it cannot fund ongoing commercial operation beyond the demonstration period.
- Given IHA projects will need to have committed funding before hydrogen business model support is awarded, projects must assess their viability in the absence of operational support.

Hydrogen business model (HBM): **revenue support** for low carbon hydrogen production. A competitive joint HBM/ NZHF electrolytic allocation round is expected to open for applications in 2022, with contracts **awarded from 2023**. IHA projects could apply if they meet the eligibility requirements, but an IHA demonstrator project cannot rely on this source of funding to complete the IHA proposed demonstration scope.

Scheme name	Proposed Industrial Hydrogen Accelerator (IHA)	Net Zero Hydrogen Fund (NZHF)	Industrial Energy Transformation Fund (IETF)
Aim	Demonstrate end-to-end industrial fuel switching to hydrogen to provide evidence on feasibility, cost and performance.	Fund development & deployment of new low carbon hydrogen production to de-risk investment and reduce lifetime costs.	Support the development and deployment of technologies that enable businesses to transition to a low carbon future.
Funding	Innovation funding for feasibility studies and demonstration	Up to £240m grant funding - for DEVEX (development expenditure) and CAPEX (capital expenditure)	£289m in grants, up to £30m/project CAPEX co-funding for feasibility, engineering studies & deployment
Technology maturity	Innovation projects	TRL 7 + Permanent deployment	TRL 7 + Permanent deployment
Timeline	Opens April 2022 First award summer 2022 Projects complete by March 2025	Spring 2022 – March 2025 Details of the first allocation round will be released in Spring 2022.	Competition windows in Spring, Summer and Autumn 22. Successful applicants must complete by March 2025.
Scope & Eligibility	- Innovation focussed - End-to-end project, from low carbon H_2 generation to industrial end-use - Operational by February 2025 - UK wide	- Low carbon hydrogen production projects - Based in the UK - Commercial projects TRL 7+	- Onsite low carbon H_2 end-use projects, TRL 7+ (H_2 generation out of scope) - Must demonstrate ability to switch to H_2 within 5 years of project completion - Within England, Wales or N. Ireland[1]
Email and web	nzip.hydrogen@beis.gov.uk Industrial Hydrogen Accelerator	HydrogenProduction@beis.gov.uk Net Zero Hydrogen Fund	ietf@beis.gov.uk Industrial Energy Transformation Fund

Proposed Industrial Hydrogen Accelerator Engagement Event – please note all information is provisional and subject to change

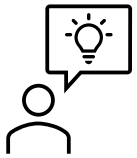
1 Sites in Scotland see Scottish IETF https://www.gov.scot/policies/energy-efficiency/scottish-industrial-energy-transformation-fund/

Networking introduction

Collaborative bids will be encouraged.

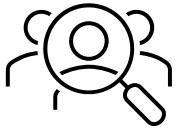
Networking events will be hosted – First 24th March 2022. Please sign up on Eventbrite to receive an invitation.

- For bidders and potential partners.



Online networking platform will open for registrations shortly.

- Create your own profile to share your product, request, expertise and meet potential partners.



Use it to find partners.

Our resources can help you arrange meetings with like-minded organisations.

Feedback on IHA Stream 1 stage gate and interest (4/4)

When giving feedback, please bear in mind:

- Our remit is to fund innovation projects
- We cannot change policy or the market conditions
- We cannot change the overall competition objectives
- We cannot change the overall competition budget (TBA)
- We cannot change the length of the competition - the funding period ends on 31st March 2025

We are particularly interested to hear any views on:

10. Do you believe our expectations of Stream 1 pre-development work to be completed prior to application are fair and reasonable? And the stage gate criteria?
11. Level of interest in leading an application Stream 1, given the expectations of prior work, considerations on operational funding and other funds on offer
12. What methods of networking would be most useful to you?

Next Steps

- BEIS will publish this presentation on the IHA website and any feedback on the competition design can be sent to nzip.hydrogen@beis.gov.uk by 18th March 2022.
- BEIS will review your inputs and use them to help us to refine the proposed IHA programme design to take account of real-world challenges.
- BEIS will respond to relevant questions in a Q&A document, which will be published on the IHA website.
- Please fill in the Expression of Interest if you have a relevant end-to-end project & you may apply to the competition.
- Networking event for prospective applicants on 24th March 9:30-11:30
- The proposed IHA competition is likely to open for applications late April 2022, with competition guidance posted on the IHA website.
- Future innovation programmes will be advertised as normal on the NZIP website.

Thank You,
BEIS