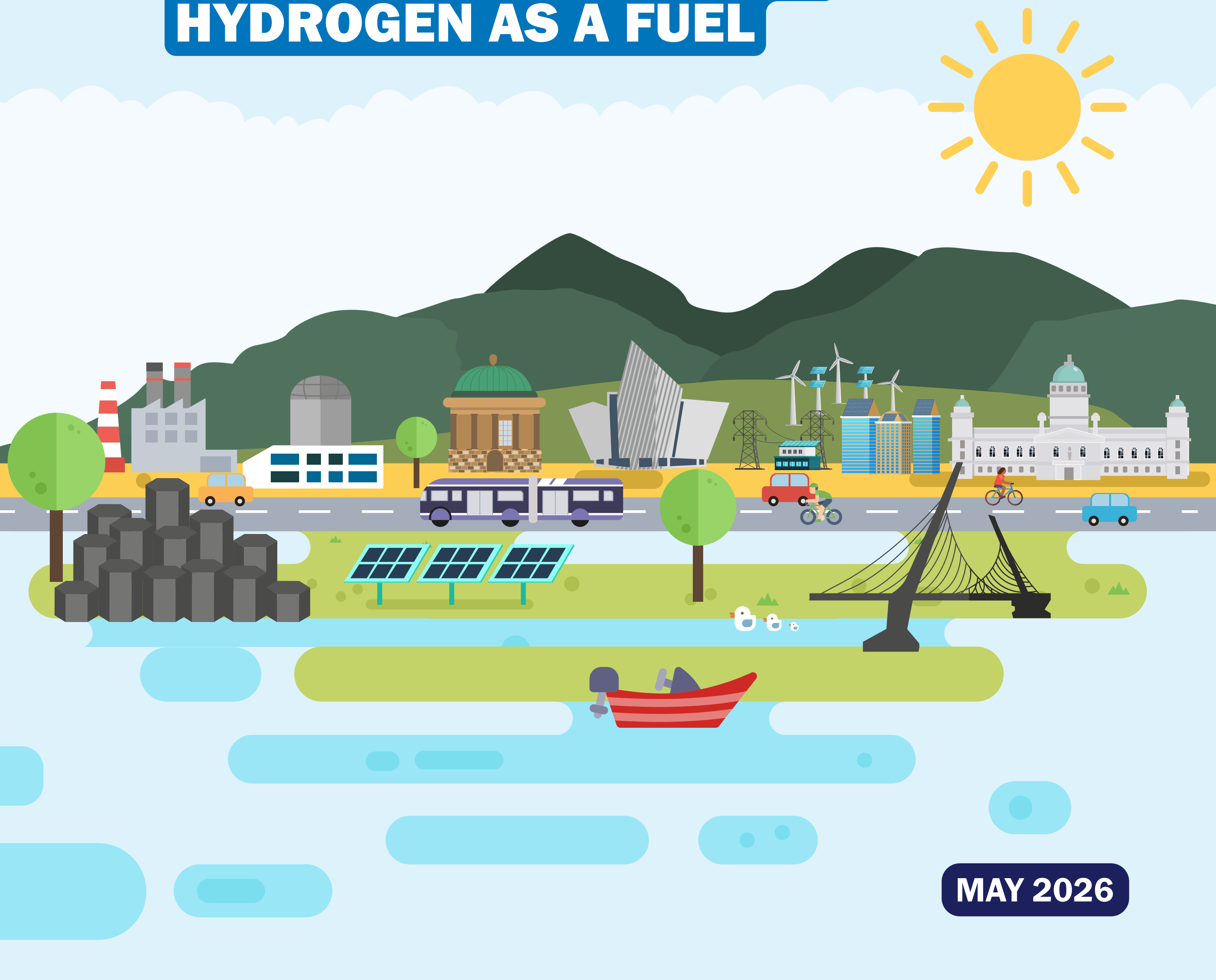
Department for the Economy
An Roinn Geilleagair
www.economy-ni.gov.uk

PUBLIC CONSULTATION RESPONSE REPORT

CONSULTATION ON A SUSTAINABLE, REGIONAL APPROACH FOR THE PRODUCTION, STORAGE, TRANSPORT AND USE OF HYDROGEN AS A FUEL



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1. BACKGROUND TO CONSULTATION AND RESPONSE STATISTICS

The *Energy Strategy: The Path to Net Zero Energy* (2021) recognised hydrogen as a key enabler for decarbonising sectors that are difficult to electrify, and as a means for enhancing energy security through more effective use of our renewable electricity resources. Since then, the policy landscape has evolved significantly, requiring refinement of the expected role of hydrogen in our future energy mix.

The consultation, conducted between 25 September and 18 December 2025, sought views on a sustainable, regional approach for the production, storage, transport and use of hydrogen as a fuel.[1] It was shaped through engagement with local industry, technical experts and independent research.[2] DfE convened the Hydrogen Industry Working Group in 2024, which informed policy development and refined the Department's vision for a competitive and resilient hydrogen sector. The preferred policy positions in the consultation are set out at Annex B.

The consultation enabled the Department to gather wider stakeholder views to refine policy and will support the development of a hydrogen policy action plan to help grow the sector. This report analyses the feedback to the consultation and responds to the issues raised.

Submissions were accepted via email, post, and Citizen Space. Citizen Space also enabled the Department to collect additional information from respondents such as their location and if their response was from them as an individual or on behalf of an organisation. Where appropriate, this information may be used within this report.

The Department received 38 responses: 27 via email and 11 via Citizen Space. While some respondents engaged with most or all of the questions, others left some questions unanswered. Overall, stakeholders provided valuable and insightful feedback on the sections most relevant to their experience.

1 Consultation on a Sustainable, Regional Approach for the production, storage, transport and use of Hydrogen as a fuel - DfE
2 Publication of independent Hydrogen research - DfE

Of the 27 responses received via email:

27
respondents
submitted on behalf of an organisation.
Of these, **17** were from Northern Ireland.

21
were on behalf of companies in the energy sectors, **3** were on behalf of community organisations, **1** was on behalf of an academic institution and **2** were on behalf of public sector bodies.

In total, 11 responses were received via the Citizen Space survey.

10 OF THE 11
respondents
indicated their location was in Northern Ireland.

10 RESPONDENTS
who provided organisational information stated they were representing a group.

5 represented companies in the energy sector,
1 was on behalf of an academic institution,
2 were on behalf of public sector bodies and
2 were on behalf of local councils.

The Department also held an in-person stakeholder engagement event in November 2025 attended by over 40 participants.

Chapters 2-6 present high-level summaries of each consultation chapter, accompanied by thematic summaries of stakeholder feedback linked to the relevant questions, and the Department's response to that feedback.

Annex A provides a more detailed breakdown of responses to each individual consultation question, alongside a summary of any additional feedback shared at the stakeholder workshop.

2. HYDROGEN PRODUCTION

Consultation chapter overview

Hydrogen production in this region is still at a very early stage, and producing low carbon hydrogen (particularly green hydrogen from renewable electricity) remains significantly more expensive than traditional, carbon intensive methods. The consultation noted that connecting electrolysers to the grid currently attracts a range of regulated charges, while private-wire arrangements can avoid these costs but reduce opportunities for electrolysers to operate as flexible demand within the wider electricity system.

Against this backdrop, the consultation highlighted that the Executive's Energy Strategy[3] positions low carbon hydrogen as the most appropriate pathway, reflecting this region's strong renewable resource base and the absence of the large industrial clusters that might favour alternative production methods.

The consultation also explained that Northern Ireland aligns with the UK-wide Low Carbon Hydrogen Standard (LCHS), which defines the emissions threshold hydrogen must meet to be formally recognised as "low carbon" and to qualify for government support. It is the Department's preferred position to support this standard. Rather than prescribing specific technologies, the Department signalled openness to a range of production methods such as electrolysis and biohydrogen, provided they meet the LCHS.

Stakeholders were also advised that the Department's preferred approach is to make use of existing UK and all island funding schemes as the sector here is still developing. As evidence on viable production and usage levels is emerging, the consultation proposed not setting a hydrogen production target at this stage, while outlining a preferred position to develop a future target focused on energy security, shaped by further evidence and stakeholder input.

Overview of consultation response feedback

Stakeholders generally expressed strong support for the Department's overall preference for low carbon hydrogen production, with broad consensus on the importance of consistency with UK and Irish standards and a clear emphasis on prioritising green hydrogen.

Nearly all respondents (94%) endorsed the use of the LCHS, emphasising that cross-jurisdictional alignment is essential for investor confidence, regulatory certainty, and access to UK and EU-aligned funding. While a small minority felt the LCHS should be stricter or limited exclusively to renewable electrolysis, the overall sentiment was that a separate standard for here would only add unnecessary complexity.

In general, the feedback demonstrated considerable support (88%) for utilising dispatched-down wind for hydrogen production. However, most respondents emphasised that such support is contingent upon the need for a carefully designed framework that avoids perverse incentives, protects consumers, and considers alternative solutions such as long-duration battery storage and grid reinforcement.

3 NI Energy Strategy – economy-ni.gov.uk, p. 33

There was broad acknowledgment that the economics of hydrogen production remain challenging, with many respondents (65%) calling for reforms to grid-related charges to reflect the potential system benefits of electrolysers as controllable loads. Those in support felt that reform could stimulate investment, improve social equity, and reduce wasted renewable energy, while others cautioned that grid charging alone would not drive hydrogen deployment without parallel development of end-use markets and supporting infrastructure. Views on private-wire arrangements highlighted similar themes: while these may offer cost savings and certainty for developers, their viability depends on scale, stable offtake arrangements, supportive regulation, and alignment with wider system needs.

Respondents also emphasised the need for clarity and support in navigating UK and all-island funding mechanisms. The majority, (84%) agreed that we should remain aligned to these schemes, albeit with stronger cross jurisdictional engagement to improve local success rates. Finally, while opinions varied on whether a hydrogen production target should be set now, respondents agreed that any future target must be evidence-based, tied to genuine demand, and grounded in our energy security needs. Some suggested a potential target of 0.5 – 1 GW by 2035, while others urged caution until regulatory and market foundations are strengthened.

Departmental Response

The Department supports the LCHS, as it provides a clear basis for producers to access funding, and ensures a consistent definition of low carbon hydrogen. Version 4 of the LCHS has recently been announced, and the Department will continue to monitor its development.

On the issues of dispatch down wind and grid-related charges, the Department recognises that these cannot be considered in isolation. This is an evolving situation, with upgrades to the electricity grid and behavioural changes expected to influence usage patterns. Engagement continues with key stakeholders to understand the economic and operational viability of using dispatch down-wind to produce hydrogen. The Department will also work with key partners to ascertain whether reforming grid related charges is appropriate.

Consultation responses also highlight that many co-dependent factors must align for a private-wire electrolytic hydrogen project to be viable, such as production and storage costs, offtake agreements, scale and location. As stated in the consultation, the Department does not intend to be prescriptive about the method of low carbon hydrogen production (other than supporting compliance with the LCHS).

On funding, the priority is to utilise UK-wide and all-island schemes to support the local hydrogen sector, drawing on a range of other available funding sources where possible. The Department recognises the challenges facing industry and continues to advocate for fair and equitable access to funding.

Finally, regarding potential hydrogen targets, uptake globally and locally has been slower than previously expected, with more developed jurisdictions unable to meet ambitious targets. Based on the consultation responses, the Department is now minded to review progress in hydrogen deployment aligned to actual need, rather than set arbitrary targets.

Regardless of production pathways, outcomes must be in the best interest of consumers. As the hydrogen market evolves, what consumers pay should be subject to appropriate regulatory scrutiny, ensuring transparency and value for money.

3. HYDROGEN TRANSPORTATION AND STORAGE

Overview of consultation chapter

The consultation outlined that hydrogen here is currently transported primarily by road, as demand levels remain too low to justify major investment in dedicated pipelines. While a proposal exists for a hydrogen pipeline, its commercial viability is still uncertain due to the scale of investment required and the limited level of current demand.

In the near term, many early hydrogen projects are expected to use hydrogen on-site, reducing the need for transport infrastructure, though the Department remains open to dedicated hydrogen transport infrastructure in the longer term if it becomes economically viable.

On storage, the consultation highlighted hydrogen's potential to support a renewable-led energy system by providing long-duration storage during periods of low wind or solar output. A range of storage options were presented, from short-term above-ground tanks to longer-term underground caverns such as those proposed at Islandmagee.

Research indicates that while batteries are more cost-effective for short-duration storage, salt cavern storage for hydrogen becomes more economical for longer periods and could play an important role in energy security. The Department therefore signalled a preferred position to support long-term hydrogen storage, while recognising that further work is required to determine how much storage may be required, and where it might be located.

Overview of consultation response feedback

Responses showed no clear consensus on the need for dedicated hydrogen pipeline infrastructure, with stakeholders almost evenly split (54% in favour). Supporters viewed pipelines as an eventual necessity to enable large-scale hydrogen deployment, support industrial clusters, integrate offshore renewable generation, and enhance energy security. Opponents emphasised that current hydrogen demand is too low and dispersed to justify the capital investment required, noting that near-term projects would rely on on-site use or road-based transport such as tube trailers.

On long-term storage, stakeholders broadly agreed that underground salt caverns represent the most viable and cost-effective option for high-capacity, inter-seasonal hydrogen storage, reflecting both international practice and our own geological potential. Many respondents also noted that a range of alternative storage methods may play a role depending on scale and duration.

Stakeholders emphasised that storage decisions should be informed by integrated whole-system energy system modelling, robust safety and environmental assessments, and ongoing research into emerging technologies. Several respondents also recommended close engagement with regulators, particularly the Health and Safety Executive NI, and encouraged further examination of how different storage approaches could contribute to energy security, system resilience, and the needs of future hydrogen markets.

Departmental Response

The Department notes that hydrogen transport and storage infrastructure must be viewed as interconnected, long-term investments. Both require sufficient production volumes and demand to be economically viable, as well as robust regulation to ensure safety, environmental compliance and community acceptance.

Given current levels of hydrogen activity, there is no immediate need for large scale transport or storage infrastructure. However, the Department considers that inter-seasonal hydrogen storage has a potentially important role in supporting a renewables-led electricity system. By enabling surplus renewable electricity to be converted to hydrogen and stored for use during periods of low generation, such storage could support system resilience, energy security and more efficient use of the electricity network. The Department will continue to engage the sector and review the evidence on how large-scale storage could be enabled in a way that delivers best value for consumers and the wider energy system.

4. HYDROGEN USE

Overview of consultation chapter

The consultation outlined that Northern Ireland's Fourth Carbon Budget anticipates hydrogen having a targeted but important role in the future energy system, particularly in hard-to-electrify sectors such as chemicals, cement, heavy transport, shipping, aviation and potentially in dispatchable power generation. The Climate Change Committee advises that hydrogen should have no role in home heating, and the consultation highlighted several barriers including low current demand and the need to align use with future transport and storage capabilities.

The chapter sought views on the most appropriate approach for hydrogen to power in this region, noting the UK Government's ongoing work on Hydrogen to Power (H2P) policy but recognising that, because Northern Ireland operates within the Single Electricity Market, the related consultation applied only to Great Britain.

For industry, the Department set out its preferred policy position that hydrogen should be deployed where it is economically viable and in sectors that cannot be easily electrified.

The chapter also explored the potential for hydrogen derived e-fuels and sustainable aviation fuels, reflecting CCC advice that these fuels may play a significant role in decarbonising shipping and aviation.

In relation to the gas network, the consultation outlined that blending hydrogen into gas grids is being explored in Great Britain, but that evidence remains mixed on its carbon impact and cost effectiveness. With the local network already largely hydrogen compliant but biomethane presenting a more realistic decarbonisation option, the Department signalled a preferred position to prioritise biomethane while gathering further evidence on blending. On home heating, the consultation emphasised existing UK Government work and strong evidence that electrification and heat pumps are more efficient and cost-effective than hydrogen.

Finally, on transport, the chapter noted rapid progress in battery technology and infrastructure, which has reduced the near-term role for hydrogen in buses and HGVs, though hydrogen is still expected to have value in sectors such as shipping, heavy goods vehicles, and large off-road machinery.

Overview of consultation response feedback

Stakeholders expressed strong support for developing e-fuels and SAFs, identifying them as one of the most strategically important opportunities for our hydrogen sector. Respondents emphasised that progress requires firm policy and regulatory frameworks, financial incentives for early-stage projects, targeted support such as grants or contracts for difference, and collaboration across producers, CO_2 suppliers, and end users. There was agreement that biogenic CO_2 will be central to e-fuel development, with sources ranging from anaerobic digestion, agricultural residues and industrial emissions to biogenic streams from energy-from-waste facilities. Many also encouraged the Department to support research, demonstration projects, and long-term demand signals, noting alignment with UK and EU aviation and maritime targets.

Views on hydrogen to power showed broad agreement that hydrogen could contribute to system flexibility, but stakeholders differed on how this could be delivered. Those supporting centralised power (11%) emphasised its potential role in balancing intermittent renewables and adapting existing power stations, while those favouring decentralised approaches (22%) stressed the efficiency, resilience, and lower cost of behind the meter fuel cells, especially in hard to electrify locations. The majority supported a dual approach (67%), recognising that both centralised and decentralised solutions may be needed, depending on evolving technologies, market conditions and local system needs.

On hydrogen blending, respondents were divided (61% supportive, 39% opposed). Supporters argued that blending could stimulate early hydrogen production, make use of the modern High-Density Polyethylene (HDPE) gas network, and provide an interim offtake route while demand grows in industry and transport. Others strongly questioned its value, highlighting the modest emissions savings, the inefficiency of using scarce green hydrogen in the gas grid, and potential cost and metering challenges for consumers. Many felt blending risks delaying decisions about the future of the gas network and might divert hydrogen away from sectors where it delivers the highest impact.

Feedback on hydrogen for transport reflected a clear understanding of the rapid shift toward electrification. Stakeholders noted that hydrogen is unlikely to be cost competitive for most road transport though it may remain suitable for heavy goods vehicles, shipping, aviation, and large off-road machinery. Respondents identified high production costs, infrastructure gaps, and limited local demand as key challenges, and recommended a whole-system, technology-neutral approach that allows both electrification and hydrogen pathways to develop depending on need.

Finally, several respondents (61%) identified additional hydrogen uses worth considering, including its use as a feedstock for ammonia and chemical production, opportunities in wastewater treatment, enhanced biomethane production, local energy supply where grid extensions are impractical, and emerging synthetic fuel technologies.

Departmental Response

In considering the development of e-fuels and sustainable aviation fuels, the Department notes the strong stakeholder interest in e-fuels and sustainable aviation fuel as an emerging opportunity for local industry. The Sustainable Aviation Bill has completed its passage through Westminster and now applies here. This will help encourage investment in local sustainable aviation fuel (SAF) production, supporting job creation in engineering, logistics, and research, and will back up the UK-wide SAF mandate introduced in 2025. Based on the evidence received, the Department recognises the potential contribution of e-fuels and SAF to decarbonisation, energy security and economic opportunity, and will continue to engage with stakeholders and encourage investment where development aligns with wider UK and EU policy. The Department also welcomes stakeholder views on the importance of biogenic carbon for e-fuel production.

On hydrogen-to-power, respondents offered a wide range of perspectives, highlighting issues such as adaptation costs, security of supply and strategic planning. While some referenced small modular reactors, nuclear power is a reserved matter for UK Government. Most respondents supported a flexible approach which reflects both the opportunities and uncertainties surrounding hydrogen-to-power, and that it would be premature to mandate a particular approach at this time.

With respect to hydrogen blending, DESNZ conducted a consultation on hydrogen blending at transmission level in 2025 and is due to set out the next steps very soon. The Department is continuing to work with local stakeholders to generate the evidence needed to support a decision on hydrogen blending. The gas network operators are conducting research into the preparedness of the local distribution network and future decisions about localised blending will need to consider the cost of any infrastructure changes, safety measures and whether blending is the best use for hydrogen.

On transport, the consultation reiterated that transport decarbonisation policy is the responsibility of the Department for Infrastructure (DfI). DfI and DfE are both part of a cross-border project with the Department of Transport to assess the feasibility of hydrogen refuelling stations, and DfI will continue to work with other public authorities and stakeholders to support the development of alternative fuel options on the transport system as appropriate.

The Department welcomes the information on further uses of low carbon hydrogen. Some of these are already taking place, for example Northern Ireland Water is testing the use of electrolysis to help in the treatment of wastewater. Research also highlights the potential use of hydrogen in various aspects of the chemical sector. In general, the Department will encourage the use of hydrogen in a targeted manner to ensure efficient deployment where it delivers greatest value.

Finally, the Department notes that some of the responses touch on areas outside its remit, including transport, agriculture and maritime policy. The Department agrees with suggestions to prioritise hard-to-electrify sectors, energy security and e-fuels. The Department does not see a role for hydrogen in home heating, rather it will focus on electrification and biomethane.

5. HYDROGEN SECTOR DEVELOPMENT

Overview of consultation chapter

Whilst the consultation outlined local company activity, council-led projects and new skills development, it also emphasised that further coordinated action will be needed for the sector to reach its full potential.

A significant portion of the chapter focused on the strength of the local supply chain and industrial capability. Work undertaken by Invest NI highlights that the region has a strong manufacturing base, substantial service capability for project delivery, and an excellent R&D ecosystem that positions it well to grow as hydrogen markets expand. Strategic investments such as the Hydrogen Innovation Initiative, the Local Industrial Decarbonisation Plan, and City & Growth Deal projects are helping to build the technical, manufacturing and research capacity required.

Alongside these, substantial progress has been made in developing the skills pipeline, with the Skill Up programme and the Green Skills Action Plan supporting workforce transition. Collectively, these measures aim to equip this region with the supply chain depth, skills base and innovation capability needed to capitalise on the economic and decarbonisation opportunities presented by hydrogen.

Overview of consultation response feedback

Stakeholders highlighted that strong policy signals will be key to developing the hydrogen supply chain and emphasised that clear strategies, targets and timelines are essential to provide certainty for investors and to encourage industry commitment.

Respondents stressed the need for financial support such as grants, subsidies, loans, and revenue mechanisms to de-risk early-stage projects, and several suggested that mandating or incentivising hydrogen use in hard to electrify sectors could help create early, reliable demand. There were calls for enabling infrastructure, modernised regulation, and targeted support for local manufacturing, noting opportunities to grow high value production capability and to build on our strong engineering and project delivery base.

Skills development featured prominently in responses. Stakeholders agreed that workforce preparation will be critical as the hydrogen sector grows. Training in hydrogen safety, regulatory compliance and emergency response was seen as key, alongside enhanced engineering skills in mechanical, electrical, and chemical disciplines tailored to hydrogen technologies. Stakeholders encouraged developing partnerships between industry, universities and further education providers to deliver research informed modules, hands-on training and placement opportunities as well as the suggestion to reform the Apprenticeship Levy to increase flexibility in supporting shorter, targeted training initiatives.

Departmental Response

The Department recognises the important role policy plays in giving industry confidence to invest in the hydrogen sector. It remains committed to continuing engagement with stakeholders and to working closely with Invest NI, which is helping develop the local hydrogen sector through cluster development, fostering partnerships between industry, academia, and government. Green fuels including hydrogen is one of Invest NI's low carbon target sectors in their *Business Plan to 2027*, reflecting the strategic alignment between industrial growth and decarbonisation.

The Department also recognises the need to build green skills capability, as demonstrated by the Green Skills Action Plan. It will continue working with industry and education partners to support targeted training and upskilling. This includes ensuring the workforce is equipped with the specialised technical and safety skills needed to support the development of the hydrogen sector and the wider transition to net zero.

6. REGULATORY FRAMEWORK

Overview of consultation chapter

This chapter outlined the regulatory foundations needed to support the development of a hydrogen sector, focusing on economic regulation, health and safety, and certification.

Stakeholders were advised that the transport of 100% hydrogen through pipelines is not currently regulated and that industry has called for clearer arrangements to unlock investment and access funding. The Department's preferred policy position is to appoint the Utility Regulator as the economic regulator for hydrogen, which would require changes to existing legislation and ongoing engagement with system operators and other stakeholders.

Although there is no hydrogen-specific health and safety legislation at present, a range of existing regulations governing dangerous substances, pressure systems, major accident hazards and pipelines already apply to hydrogen activities. It noted that any future introduction of hydrogen or hydrogen blends into the gas network would require amendments to gas safety regulations.

The consultation further described the forthcoming UK-wide Low Carbon Hydrogen Certification Scheme (LCHCS), which will allow hydrogen producers to demonstrate eligibility for subsidy schemes, access low carbon markets and report decarbonisation progress. While the scheme is intended to apply UK-wide, final arrangements remain subject to review as the scheme moves toward a mandatory phase.

Reflecting this context, the Department's preferred policy position is to adopt the LCHCS rather than create a bespoke alternative, while continuing to engage with DESNZ to ensure the scheme meets the needs of local producers.

Overview of consultation response feedback

Stakeholders identified the need for a clear and comprehensive regulatory framework as one of the most important enablers for the hydrogen sector here. Respondents emphasised that regulation should span the entire hydrogen value chain, from production through to transport, storage, blending and end-use.

Feedback highlighted the importance of appointing a dedicated regulator and expanding the Utility Regulator's remit to explicitly support net zero objectives, improve coordination across energy systems, and enable access to UK-wide funding and business models. Stakeholders also stressed the need for streamlined planning and permitting processes, clearer routes to grid connections, and regulatory alignment with the UK and EU to facilitate trade and certification. Concerns were also raised about transparency, the need for independent oversight, and avoiding undue influence from large corporates as the sector grows.

There was very strong support (93%) for the intention to appoint the Utility Regulator as the economic regulator for hydrogen, with nearly all respondents agreeing that the Regulator's existing experience in gas, electricity and water makes it well placed to oversee the emerging hydrogen market. Stakeholders noted the importance of updating legislation such as the Gas Order (NI) 1996 to ensure the regulator has explicit powers and sufficient flexibility to access the hydrogen expertise required as the market develops.

With regards to the LCHCS, the response was unanimous. All respondents (100%) agreed that it should be adopted here. Stakeholders viewed the LCHCS as essential for market access, investor confidence, compliance with subsidy schemes, and alignment with both UK and EU standards. Respondents emphasised the importance of ensuring compatibility with RFNBO [4]rules, enabling access to renewable electricity across the Single Electricity Market, and maintaining close engagement with DESNZ as the scheme evolves.

Departmental Response

The Department notes that many of the concerns identified by stakeholders such as funding, electricity considerations, the role of the Utility Regulator and certification are addressed across other chapters. The Department will continue to work closely with the Health and Safety Executive NI and other statutory partners on a range of hydrogen issues including safety and planning, ensuring that regulatory processes keep pace with emerging needs.

The Department welcomes the endorsement of the Utility Regulator as economic regulator for hydrogen. The Utility Regulator has experience in the regulation of both gas and electricity, two key areas of importance for hydrogen. There will need to be changes to legislation to facilitate this as well as the development of appropriate regulation, and it will be vital to work with local stakeholders and statutory partners in this process.

On certification, the Department notes that this is a small region with a nascent hydrogen sector, so it is more appropriate to join an existing scheme like the LCHCS that has industry support.

4 Renewable Fuels of Non-Biological Origin (RFNBOs) are synthetic liquid or gaseous fuels (e.g., green hydrogen, e-methanol, e-kerosene) derived from renewable electricity and carbon sources rather than biomass.

7. NEXT STEPS

Hydrogen cannot be considered in isolation. Responses throughout the consultation highlighted its interconnected role across the energy system including gas, electricity, energy security, economic development and skills. The Department will use the evidence gathered through this consultation to inform the development of a finalised hydrogen policy and action plan for the local hydrogen sector.

ANNEX A: DETAILED FEEDBACK FROM CONSULTATION RESPONSES AND STAKEHOLDER ENGAGEMENT EVENT

This section gives more detailed examples of the responses provided to the 22 questions asked in the consultation and the issues raised at the stakeholder engagement event.

Hydrogen Production

1. Do you agree with the Department's support for the Low Carbon Hydrogen Standard (LCHS)?

- 36 out of 38 respondents answered this question (11 on citizen space, 25 via email)
- Of the 36 respondents who answered this question, 34 (94%) responded "*yes*" and 2 (5%) responded, "*no*".

Those who answered "*yes*" (34 respondents) provided opinions such as:

- Introducing a separate Northern Ireland specific standard is seen as unnecessary
- Consistency with UK wide standards is considered critical for market confidence, regulatory certainty, investor confidence, and access to funding mechanisms such as UK Hydrogen Allocation Rounds.
- There is consensus that hydrogen production should face strict thresholds on air pollutants and greenhouse gas emissions and require permitting.
- Production should prioritise green hydrogen, with electrolysis ideally using excess renewable energy rather than grid electricity from fossil fuels. Concerns are raised about blue hydrogen pathways under the LCHS, with some opinion that green hydrogen is the only true low carbon option.
- Alignment with EU and Republic of Ireland standards is highlighted as essential due to the integrated electricity and gas markets and to prevent barriers to funding and market access.
- There was emphasis of the need to collaborate with DESNZ to align UK and Irish hydrogen standards, thereby safeguarding NI businesses' access to funding from both UK and ROI.
- Ongoing review is recommended to ensure LCHS reflects technological developments and regional needs, with clear guidance for SMEs.

Those who answered "*no*" (2 respondents) provided opinions such as:

- There is currently no viable mechanism to enable meaningful green hydrogen production before 2050.
- Production methods should include reactor-controlled pyrolysis with carbon capture and aluminium hydroxide generation, using hydrogen as a byproduct.
- The existing definition of "low carbon hydrogen" is overly broad and permissive.
- LCHS must exclude all fossil fuel–based hydrogen; only hydrogen produced via electrolysis using renewable energy (green hydrogen) should qualify.

2. Is it economically and/or environmentally beneficial to utilise otherwise dispatched down wind generation for hydrogen production? Explain your reasoning, highlighting any disincentives/perverse incentives not to and the circumstances in which you see temporal and geographic correlation as being important.

- 34 of the 38 respondents answered this question (11 on Citizen Space, 23 via email)
- 30 of the 34 (88%) respondents expressed support in principle, however, the vast majority of this support was qualified considering the economic and environmental contexts.
- 4 out of the 34 (12%) respondents advised they did not think it was economically and/or environmentally beneficial to produce hydrogen via dispatched down wind.

The respondents who expressed support provided reasons such as:

- When wind farms generate more electricity than the grid can accommodate, the surplus energy is often wasted. The current high level of curtailment wastes renewable resources and imposes substantial costs on consumers.
- Using dispatch down wind could provide a viable route to market for curtailed energy, help increase renewable penetration, help achieve renewable targets, accelerate decarbonisation and enhance energy security.
- Even with ambitious assumptions regarding interconnection, long-duration storage, and demand-side flexibility, it is predicted that over 20% of available renewable generation may be dispatched down by 2030 due to surplus availability.

Those who provided qualified support gave reasons such as:

- Increased electricity demand and renewable capacity would reduce levels of dispatch down for hydrogen production. Surplus energy production could be mitigated by smart meters and time of use tariffs, shaping demand to times of high renewable availability.
- Dispatch down for network constraint is sometimes necessary and despite best efforts, persistent dispatch down levels may remain. Long-duration storage could be a credible solution for storing dispatched down energy, but this is hampered by a lack of sufficient energy storage capacity in the north which increases dependence on fossil fuels during low wind periods.
- Quantifying hydrogen production from dispatch down requires careful consideration of the factors influencing dispatch down and avoids inadvertently incentivising surplus generation for hydrogen.
- The cost of electrolytic hydrogen is a key deployment constraint. Hydrogen policy should focus on creating investment friendly conditions.
- Wind resources are often remote and hydrogen demand industrial, so transport and infrastructure add costs and complexity which should be considered.
- Managing network congestion should be weighed against alternative options (energy storage, pumped hydro, grid reinforcement) for cost-optimal approaches; decisions could be accommodated through whole system planning frameworks.
- The Renewable Electricity Price Guarantee (REPG) would need a mechanism that allows curtailed electricity to be used for hydrogen while avoiding double compensation, since the REPG already provides full payment for constrained energy.

4 of the 34 respondents to this question advised that they did not feel that dispatched down hydrogen production was economically and/or environmentally beneficial, they provided reasons such as:

- The main hydrogen applications all rely on steady and predictable hydrogen flows. An electrolyser cannot supply these markets reliably.
- SONI's Shaping Our Electricity Future and Transmission Development Plan shows constraints peaking in the second half of the 2020s and then falling by 2030 as key reinforcements and interconnectors come online.
- The economics of this are unknown and there are significant technical reliability risks which would need to be assessed.
- Should not be viewed as a substitute for rapid grid development or investment in other forms of technically proven and readily available long duration energy storage.
- Hydrogen will always be substantially more expensive than the electricity needed to produce it due to the many efficiency losses. Replacing current energy used with hydrogen will require at least twice as much generation capacity as electrification.

3. Are there grounds (economic, environmental, social equity) for reforming the grid-related charges for connecting electrolysers as controllable loads?

- 26 of the 38 respondents answered this question (8 on Citizen Space,18 via email)
- 17 of the 26 (65%) respondents to this question expressed clear support for the reformation of grid-related charges.
- 7 of the 26 (27%) respondents to this question did not provide clear support for or against the reformation of grid-related charges.
- 2 of the 26 respondents to this question expressed that they did not support reforming grid related charges for connecting electrolysers as controllable loads.

Reasons in support of the reformation of grid related charges, included:

- Reforming grid charges would stimulate hydrogen production in Northern Ireland.
- High electricity costs are a major barrier to green hydrogen deployment.
- Applying standard charges to electrolysers ignores their potential system benefits and deters investment.
- Environmental advantages include facilitating decarbonisation of hard-to-electrify sectors and reducing renewable energy curtailment.
- Reforming charges or incentivising electrolyser connections would lower production costs and accelerate deployment. This would also allow electrolysers as controllable loads, improving system efficiency, grid stability and support net zero targets.
- High connection costs exclude smaller businesses, and reform would create a fairer market.
- Social equity benefits include lower consumer costs, improved efficiency, and greater energy security for all consumers.

Those who did not provide clear support for or against reforming grid related charges provided reasons such as:

- Electrolysers are intended to replace fossil fuels in difficult-to-electrify sectors, support industrial processes, and facilitate cleaner transport and e-fuels. Grid charging reform may assist this transition, but should be viewed as a supporting measure, not the main driver.
- Lower network charges during periods of high renewable output or spare grid capacity could enhance system efficiency, but such reform should not be pursued solely to promote electrolysers using curtailed electricity.
- Reducing charges alone will not guarantee new hydrogen projects or stimulate end use markets. Poorly designed reforms could distort locational incentives, causing projects to prioritise cheap grid access over proximity to genuine hydrogen demand or industrial use.
- If hydrogen and electrolysers are shown to provide system benefits, these should be reflected in grid charging, requiring thorough assessment by the System Operator for Northern Ireland (SONI).
- Reform of grid charges must be considered alongside the wider economics of electrolysers and green hydrogen, as well as the potential impacts on end consumers.

Those who expressed that they did not support grid related charges provided reasons such as:

- Prioritise co-location models with electrolysers close to renewables, and private wire arrangements, to avoid grid costs and reduce energy losses. However, these should not be a way to bypass grid accountability or disadvantage consumers.
- Require hydrogen project proponents to guarantee additional renewable energy (i.e. not diverting capacity already allocated) with clear additionality rules.

4. What are the minimum conditions (e.g. scale, off-take market, supply chain, etc.) that would need to pertain to make a "private wire" connection to renewable power generation for electrolytic production of hydrogen viable?

- 18 of the 38 respondents answered this question (7 on Citizen Space,11 via email)

A summary of the key findings from the responses is as follows:

- Sufficient project scale is necessary to justify capital investment in a dedicated private wire connection; smaller projects may face prohibitive costs relative to output. Economic viability is challenged by current high production, storage, and compression costs compared to fossil fuels.
- Reliable, long-term offtake agreements ideally with anchor customers in industry, transport, or energy are essential. The lack of significant and stable hydrogen demand is a major barrier, especially in regions with limited industrial use.
- Ready access to proven and reliable electrolyser technology, storage, and distribution infrastructure is vital to ensure efficient operation, maintenance, and scalability of hydrogen production systems.

- Regulatory and Policy Support: Clear regulatory frameworks, compliance with standards (e.g. UK Low Carbon Hydrogen Standard), and access to funding or incentives are needed to enhance project viability. Planning and permitting processes should facilitate behind-the-meter hydrogen production.
- Technical integration must match hydrogen production with renewable electricity availability. Private wire arrangements may limit grid flexibility and resilience, and grid connection may still be preferred for stable supply, especially for industrial demand users.
- Private wire connections may reduce grid costs but can remove benefits to the wider electricity network, such as grid balancing services, potentially impacting system management and resilience.
- Viability improves when hydrogen production is co-located with offtake (e.g. at ports, industrial estates) and when demand can absorb variable output. Most industrial users require stable supply, often necessitating both private wire and grid connections.
- The financial viability depends on predictable offtake, long-term renewable generation contracts, and financial support mechanisms to bridge cost gaps with fossil fuel alternatives.
- Interim funding may be needed until hydrogen achieves cost competitiveness.
- Optimised grid connections at renewable sites, transparent planning, and alignment with system objectives are required. Licensing from relevant regulators is necessary, and site-specific analysis needed.
- Reference points include 1–15 MW for projects under development; minimum project sizes under regulatory schemes are typically 5 MW.
- Detailed analysis of private wire benefits, grid impacts, regional curtailment, and hydrogen use cases before widespread adoption.

5. Do you agree with the Department's focus on UK and Ireland-wide funding streams to support the local industry?

- 32 of the 38 (84%) respondents to the consultation answered this question (11 on Citizen Space, 21 via email)
- 27 of the 32 (84%) respondents who answered this question said, "*yes*", indicating their agreement with the focus on UK and Ireland-wide funding. 5 of the 32 (16%) respondents answered, "*no*".

Those who answered "*yes*" (32 respondents) provided opinions such as:

- UK and Ireland-wide established funding streams offer transparency, access to larger pools of capital and reduce risk. This comes with increased competition, especially from more established clusters in Great Britain.
- Alignment with UK-wide frameworks avoids unnecessary duplication and helps Northern Ireland projects integrate more easily into the broader UK hydrogen market.
- Northern Ireland can benefit from regional policy complementarity, leveraging the Single Electricity Market (SEM) and participation in EU aligned certification schemes for cross-border opportunities.

- There is a need to improve the success rate of Northern Ireland projects in securing funding, as no local projects have so far benefited from Hydrogen Allocation Round (HAR) funding. Proactive engagement by the Department with stakeholders is essential to raise awareness, identify barriers in the application process, and support Northern Ireland projects to compete effectively.
- Consideration must be given to the impact of funding mechanisms (such as levies on gas shippers) on Northern Ireland consumers, ensuring they are not disadvantaged by increased costs without local benefit.
- While UK and Ireland-wide funding should remain the focus, complementary local funding and stronger market signals may be needed to stimulate demand and bridge gaps not addressed by wider schemes.
- Targeted support, such as development expenditure (DEVEX) funding and feasibility studies for decarbonisation, could help NI projects become more competitive and establish genuine hydrogen demand.
- The Department should continue to advocate for Northern Ireland specific considerations in the design of UK and Ireland-wide funding schemes and to collaborate with UK, Ireland, and EU partners.
- Limited resources make a bespoke Northern Ireland hydrogen support scheme infeasible in the short term; leveraging UK and Ireland-wide funding is therefore pragmatic, but ongoing engagement is needed to ensure fair access and support.
- Establishing an economic regulator for hydrogen in Northern Ireland is a priority to enable participation in certain UK funding models (e.g., for hydrogen transport and storage).

Those who answered, *"no"* (5 respondents), provided opinions such as:

- While there is a place for accessing UK and Ireland-wide funding streams, localised funding is also imperative to the speed and scale at which the opportunity for low carbon hydrogen can be exploited
- Northern Ireland's energy and industrial landscape differ from Great Britain. UK-wide funding schemes may not adequately accommodate these differences and risks Northern Ireland falling behind.
- The HAR process does not allow potential production projects to export. Any hydrogen produced in Northern Ireland using HAR subsidies should be eligible for export into the Republic of Ireland and not restricted to local offtake.

6. What sources of evidence, for example where demand growth is to arise from, should be used to help establish an energy security target for hydrogen in the region?

- 23 of the 38 respondents answered this question (9 on Citizen Space, 14 via email)

A summary of the key findings from the responses is as follows:

- Focus on hard-to-electrify sectors where hydrogen provides the most value, such as heavy industry, transport, and e-fuel production. Consider demand projections for e-fuels, map high-temperature industrial heat needs and assess demand from shipping, agriculture, and other sectors identified in Climate Change Committee reports.
- Include industrial feedstocks, especially chemicals, where hydrogen is essential for process decarbonisation.
- Evidence should also reflect the fact that today's energy security relies heavily on large volumes of liquid and gaseous fossil fuels, which will not exist in a net-zero system. Hydrogen, or another energy source with similar features, will be required to replace this role to provide sufficient energy security.
- Utilise data on current and planned renewable generation (wind, solar) to determine green hydrogen production capacity. Target areas with significant dispatch-down wind energy and renewable curtailment for potential electrolyser deployment.
- Analyse existing and future hydrogen off-takers, production capabilities (electrolysis and other methods), and infrastructure needs.
- Evaluate storage, distribution networks, and supply chain readiness to support reliable hydrogen production and use.
- Adopt integrated energy system modelling covering electricity, gas, transport, industry, and storage to assess hydrogen's role in resilience and seasonal variability. Draw on national energy and climate plans, long-term scenario modelling, and regional energy strategies for benchmarking and ambition setting.
- Benchmark against neighbouring regions, UK-wide and Irish hydrogen targets, and international best practices.
- Plan for hydrogen to replace fossil fuels in providing energy security and system resilience, especially during periods of low renewable generation.
- Prioritise energy security, curtailment reduction, and export capacity over headline production volumes.
- Recognise the value of over-providing strategic capacity for energy security, drawing lessons from recent EU energy crises.

7. What would be a realistic target for low-carbon hydrogen production in NI by 2035?

- 24 of the 38 respondents answered this question (8 on Citizen Space, 16 via email)

Some respondents provided figures to demonstrate a realistic target for Northern Ireland by 2035, summarised below:

- Some responses proposed targets of 0.5 –1 GW by 2035, reflecting Northern Ireland's population size (~3% of UK), strong wind resource, and the early stage of its hydrogen industry.
- Some respondents advocate for a lower target, e.g. 0.2–0.4 GW, based on grid capacity, industrial demand, and comparisons with Welsh and Irish targets.
- There is also reference to scaling up to 3 GW or more by 2050, if infrastructure and demand develop in line with broader UK and European expectations.
- Some advised that these targets should focus on installed electrolyser capacity, which can help manage wind dispatch down and support investor confidence, rather than solely on hydrogen volumes produced.
- Staged milestones (e.g. interim targets for 2030) and regular review were recommended to track progress and adjust to market and policy developments.

Some respondents did not provide a figure for what they would believe to be a realistic target, however, were supportive of a target being set:

- Some respondents suggested setting an ambitious hydrogen production target for Northern Ireland by 2035, as it could help drive investment and build industry confidence.
- They emphasised that any target should be informed by energy system modelling, considering renewable resources, infrastructure requirements, and demand across different sectors.
- Additionally, respondents highlighted the importance of considering export potential and opportunities for economic growth when setting these targets.

Some respondents did not support setting a hydrogen production target for Northern Ireland at this stage:

- Priority should be given to stimulating credible demand, supported by a stable regulatory framework and long-term certainty.
- Concerns were raised that premature targets could lead to a mismatch between supply and demand, resulting in underutilised assets.
- Removing policy and regulatory barriers to enable access to UK and all-island hydrogen funding was recommended, rather than establishing immediate production targets.
- A hydrogen investment target was noted as a potential way to signal departmental support and attract project funding.

Hydrogen Transport and Storage

8. Do stakeholders think Northern Ireland requires dedicated hydrogen pipeline infrastructure? Explain your reasons.

- 26 of the 38 (68%) respondents to the consultation answered this question (11 on Citizen Space, 15 via email) and 12 refrained to do so.
- 14 of the 26 (54%) respondents who answered this question said, *"yes",* indicating their agreement that dedicated hydrogen infrastructure was required. 12 of the 26 (46%) respondents answered, *"no".*

Those who answered, *"yes",* (14 respondents) provided opinions such as:

- Northern Ireland's distribution network, is well positioned for conversion to hydrogen blends or pure hydrogen, minimising the upgrades needed.
- While there is currently insufficient demand to justify dedicated hydrogen pipelines, some respondents believe such infrastructure will become economically viable.
- Pipelines are viewed as the most cost-effective and efficient method for transporting large volumes of hydrogen.
- Repurposing existing natural gas pipelines is recommended as a transitional, cost-saving measure, with dedicated hydrogen networks to be developed as demand and production scale up.
- Some respondents see dedicated pipelines as essential for connecting industrial clusters, energy hubs, and supporting the decarbonisation of dispatchable power generation.
- Some respondents advised of the need for clear policy direction, regulatory frameworks, and mandates for network operators to prepare and deliver hydrogen-ready infrastructure, as well as alignment with plans in neighbouring regions.
- Adequate transport and storage infrastructure, including salt cavern storage, are identified as key enablers for large scale hydrogen deployment and energy security.
- Anticipatory investment in pipelines and storage is recommended to avoid infrastructure bottlenecks that could hinder market development.
- Dedicated hydrogen pipelines would enhance system flexibility, support future integration with offshore renewables, and enable participation in emerging hydrogen markets.

Those who answered, *"no",* (12 respondents) provided opinions such as:

- Hydrogen demand in Northern Ireland is currently too low and scattered to justify investing in dedicated pipeline infrastructure; most near term projects will likely use hydrogen on site.
- Pipelines should be considered only after demand rises significantly and is concentrated in locations that could benefit from major transmission assets.
- Investing in infrastructure prematurely risks creating underused systems and stranded assets, tying up capital unnecessarily.
- A decentralised approach focused on local hydrogen hubs and leveraging existing infrastructure is recommended, as this reduces transport needs and supports efficient decarbonisation.
- Current methods for hydrogen transport, such as tube trailers or compressed gas, are seen as adequate for requirements.

- Developing hydrogen pipelines involves technical and safety challenges, including leakage, integrity, and compatibility concerns; any conversion of existing pipelines must undergo thorough assessments.
- Both UK and EU strategies advocate phased development, aligning infrastructure growth with actual demand and focusing first on production and consumption clusters rather than national grids.
- To avoid inefficiencies, integrated planning with electricity networks is recommended, drawing lessons from Europe's experience.

9. Are there alternatives to underground caverns for high-capacity, long-term hydrogen storage that should be investigated?

- 24 of the 38 (63%) respondents to the consultation answered this question (7 on Citizen Space, 17 via email)

There was broad recognition throughout the majority of responses, that underground caverns for high capacity, long-term storage of hydrogen was the most optimal option, summarised below:

- Salt caverns are a cost effective and proven way to store very large volumes of pressurised hydrogen for extended periods with minimal losses. They are uniquely suited to interseasonal and strategic energy reserves, supporting system flexibility and energy security.
- Northern Ireland has geological potential for developing salt caverns, which is not the case for other alternatives like depleted gas reservoirs in the region.
- The chemicals industry has used salt caverns for hydrogen storage for decades in other regions, providing a track record of safety and reliability.

However, respondents provided opinions on alternatives including:

- Overground tanks for compressed hydrogen offer flexible storage options suitable for shorter-term needs. However, at high capacities and long durations, these become increasingly expensive, space-intensive, and face ongoing safety and leakage concerns.
- Storing hydrogen as a liquid at very low temperatures is technically feasible but comes with high costs and significant energy requirements for liquefaction. This option is generally considered too expensive for most large-scale applications.
- Emerging technologies such as metal hydrides can store hydrogen in solid form, though these solutions are still in development and may offer practical and economic benefits in the future.
- Storing hydrogen chemically bound in carriers like ammonia or methanol allows for easier handling and transport. These carriers can be converted back to hydrogen when needed and may also serve as low-carbon fuels, providing flexibility and dual benefits for energy security and decarbonisation.
- Using the hydrogen transport network itself to store gas (linepack) can provide some storage capacity, potentially reducing the need for dedicated storage assets, especially where demand and supply are well matched.
- Existing oil and gas storage facilities or floating storage vessels could be adapted for hydrogen storage, offering interim or distributed storage solutions.

Respondents also provided added additional advice, to include:

- Consult with relevant authorities such as the Health and Safety Executive (HSE) regarding the siting and operation of hydrogen storage facilities.
- Ensure that hydrogen storage policy is informed by integrated energy system modelling to clarify storage needs, including quantity, duration, and usage, and to determine the most appropriate technology mix.
- Conduct transparent risk assessments and environmental impact assessments for all storage options, with robust monitoring and verification of hydrogen leakage.
- Support ongoing research and development into emerging storage technologies and alternative carriers to ensure future flexibility and cost effectiveness.

Uses of Hydrogen

10. What actions can the Department take to encourage the development of e-fuels as a use for hydrogen?

- 22 of the 38 (58%) respondents to the consultation answered this question (8 on Citizen Space, 14 via email).

Suggested actions included:

- Ensure strong legislative and policy foundations, to decarbonise sectors and incentivise fuel innovations and align UK policy frameworks with Northern Ireland's market.
- Provide financial support and incentives for e-fuel projects including R&D, pilots etc. Offer targeted incentives such as subsidies, contracts for difference, soft loans, capital grants etc. Leverage UK and cross border funding.
- Improve infrastructure and market development, including de-risking grid connections with conditional pathways and create a marketplace for contracts between producers and users from Anaerobic Digestion (AD), Direct Air Capture (DAC) and biomass sources.
- Provide sector support by mandating e-fuel adoption in aviation and shipping and facilitate upgrades of maritime vessels for e-fuel use and enable partnership and collaboration among hydrogen producers, CO2 and end users. The Department could also engage with UK and EU on e-fuels policy for shared learning, as well as a local working group.
- Biomethane – prioritise development of this industry to provide consistent supply of biogenic CO2 for e-fuels production.
- Research, to include outlining the wider benefits of e-fuels for air quality, health and decarbonisation. Fund government backed trials and projects.
- Establish long term policy signals and mandates to create demand, and secure initial offtakers as well as align with current UK and EU targets for aviation and maritime sectors.

11. What do you see being the sources of biogenic carbon for creating e-fuels?

- 15 of the 38 (39%) respondents to the consultation answered this question (6 on Citizen Space, 9 via email).

Suggested sources of biogenic carbon included:

- Biomass Combined Heat and Power (CHP) and/or Energy from Waste (EfW) Plants already operate at commercial scale in Northern Ireland and generate biogenic CO2 streams suitable for e-fuels and (in combination with hydrogen) sustainable aviation fuels (SAF) production.
- Agricultural and Organic Waste Streams: Livestock manure, crop residues, grass silage, and other agricultural by-products are abundant and can be processed via anaerobic digestion to produce biogas, containing carbon suitable for capture and conversion.
- Anaerobic Digestion (AD) and Biomethane Production: AD facilities produce biogas, which can be upgraded to biomethane with CO2 separated and captured in a concentrated stream.

- Industrial and Process Emissions: CO2 from incineration of sewage sludge, fermentation and digestion in the agri-food sector, and brewery/distillery operations are all established, geographically proximate sources of verifiably biogenic CO2.
- CO2 from unavoidable industrial emissions (cement, steel) can be used for Recycled Carbon Aviation Fuel (RCAF) until 2041 under ReFuelEU Aviation.
- Direct Air Carbon Capture (DAC): Technologies such as DAC, can capture CO2 directly from the atmosphere for use in e-fuel synthesis.
- As per the EU Renewable Energy Directive (RED II and III), eligible sources include CO2 released during: combustion of sustainably sourced biomass, anaerobic digestion, upgrade of biogas to biomethane, bio-alcohol production, processing of non-fossil organic waste.

12. What other sources of carbon do you see as being deemed sustainable for use in creating e-fuels?

- 15 of the 38 (39%) respondents to the consultation answered this question (6 on Citizen Space, 9 via email).

Other suggested forms of carbon for e-fuels included:

- For all non-biogenic sources, lifecycle emissions must be assessed to ensure genuine decarbonisation and to avoid simply shifting emissions elsewhere.
- Waste CO_2 from biorefineries and fermentation processes
- Emissions captured from cement, steel, chemical production and other industrial processes (notably cement factories in ROI and NI)
- Unavoidable process emissions from local industries (e.g. cement operations)
- CO_2 removed directly from the atmosphere, especially when combined with green hydrogen
- Recirculation of CO_2 from captive capture installations ('Carbon Loop')
- Combining local and international Direct Air Captures and Carbon Storage (DACCS), Bio Energy with Carbon Capture and Storage (BECCS) and Sustainable Aviation Fuel (SAF) deployment to meet demand for synthetic fuels, particularly in aviation and maritime sectors.

13. Should hydrogen be used in the power sector in a centralised (power stations) or decentralised manner (fuel cells/engines), or both?

- 18 out of 38 (47%) respondents answered this question fully (11 Citizen Space, 7 via email).
- 9 respondents (via email) did not expressly answer the question with regards to giving their opinion on whether hydrogen should be used in the power sector via a centralised/ decentralised (or both) manner. However, the 9 respondents provided valuable insight and opinions on the matter.

Those who answered "*centralised*" (11%, 2 respondents) provided opinions such as:

- Hydrogen to power generation could play a central role in balancing intermittent renewable energy sources and maintaining a reliable electricity supply
- Existing power stations, may be adapted to become hydrogen capable, allowing for flexible, dispatchable power and reduced reliance on imported gas.

- The introduction of small modular reactors (SMRs) is suggested as a way to provide zero-carbon electricity and process heat for hydrogen production via electrolysis.
- Since nuclear generation is not permitted in the Republic of Ireland, SMRs located in Northern Ireland could export clean energy across the interconnectors, contributing to improved energy resilience on an all-island basis.

Those who answered *"decentralised"* (22%, 4 respondents) provided opinions such as:

- Hydrogen should primarily be used for hard to abate sectors, such as replacing diesel generators in decentralised power generation, where alternatives are limited.
- Limitations to centralised power systems - they can be more vulnerable to targeted disruption; they have higher transport needs, impacts and costs; and using hydrogen in traditional centralised steam production can result in higher Nitrous Oxide emission compared to natural gas.
- Technical and economic challenges with centralised use - significant retrofitting of existing power plants to use hydrogen increases costs and can impact operational stability during transition periods; long-term storage solutions, such as salt caverns at Islandmagee, are necessary but face legal and community objections delaying progress; centralised use needs a steady supply of affordable of CO2, transport and storage, or biomethane, both of which are currently uncertain; future production of low-carbon hydrogen may become more costly if reliant on grid electricity, especially as available wind and solar for hydrogen production are expected to decrease by 2031.
- Decentralised production and use of hydrogen on site with behind the meter renewable generation offers the greatest efficiency and lowest cost due to minimised transportation and associated emissions.

Those who answered, *"both"* (67%, 12 respondents) provided additional opinions such as:

- Both centralised and decentralised options are key for achieving decarbonisation and meeting diverse energy system requirements.
- Decentralised hydrogen technologies, such as fuel cells and engines, enable flexible, local power generation, reduce transmission losses, and support resilience in areas with limited grid access (e.g. remote regions or specific industries).
- A combination of both approaches enhances energy security; centralised systems provide substantial backup but rely on extensive infrastructure, while decentralised systems can be rapidly deployed and strengthen local resilience.
- Retaining both options allows for location and system-specific solutions as technologies and economics evolve; ongoing strategic modelling and policy support are essential.
- Fuel cells emit no air pollution at the point-of-use and achieve up to 60% efficiency; burning hydrogen can create NOx, a significant pollutant, though less particulate and carbon monoxide compared to fossil fuels. Effective NOx control (technical and regulatory) is needed for hydrogen combustion; UK interim guidance exists for regulating emissions.

- Fuel cell costs need to fall further and benefit from economies of scale; decentralised uptake is needed for manufacturing scale. Careful economic and environmental modelling is required, including impacts on market prices, generator/consumer effects, and participation in markets. If solutions are not competitive, they are unlikely to secure financial support; pilot projects should cover both scales for learning and flexibility.
- Strategic planning and flexible, evidence-based policy is essential; all options should remain open due to rapid technology evolution. Coordination with the all-island electricity market and regulatory bodies is necessary to align approaches.

There were 9 respondents who did not directly answer the question but provided some insight on the matter and provided opinions such as:

- Hydrogen's role in the power sector should be determined through a comprehensive, evidence led, system wide study to identify the most cost-effective pathway to decarbonisation. This should consider alternatives such as storage, interconnection, and demand response avoiding assumptions that hydrogen is the default option.
- If hydrogen does have a role, evidence from system studies and recent international research suggests that decentralised, flexible generation is likely to provide greater value than large, centralised hydrogen power stations.

14. Do you see a role for local hydrogen blending in the gas network? If so, please provide evidence for how it can be economically viable.

- 28 out of 38 (74%) respondents answered this question fully (11 Citizen Space, 17 via email).
- 17 of the 28 (61%) respondents who answered this question said, *"yes"*, indicating their agreement that there is a role for local hydrogen blending. 11 of the 28 (39%) respondents answered, *"no"*.
- 4 respondents did not expressly answer the question, but their response mirrored the information already captured in the yes/no responses.

Those who answered *"yes"* (17 respondents) provided opinions such as:

- Hydrogen blending into the gas network is best viewed as a transitional measure, supporting early hydrogen projects and market development. It provides a strategic bridge while dedicated hydrogen infrastructure and demand mature, helping producers reach financial close by acting as an offtaker of last resort.
- Northern Ireland's modern High-Density Polyethylene (HDPE) based gas network is largely hydrogen compliant, minimising the investment needed for infrastructure upgrades.
- Essential preparatory work includes technical studies, regulatory changes, and stakeholder coordination to ensure safe implementation and market alignment with neighbouring jurisdictions.
- Alignment with GB and ROI blending policies is crucial for energy security and uninterrupted cross-border supply.
- Blending supports system resilience and flexibility, allowing practical experience in hydrogen safety and operation while demand matures in industrial, transport, and power sectors.

- Early hydrogen blending can contribute to job creation and economic growth, with sector analysis estimating significant employment and GVA benefits by 2030.
- International experience shows blending can unlock early hydrogen volumes.

In terms of economic viability:

- Blending leverages existing gas infrastructure, reducing the need for immediate large-scale investment and offering a cost-effective interim solution compared to building parallel hydrogen networks.
- Staged blends (up to 20%) can lower transition costs by building supply chains and operational experience before full conversion, with modest emissions reductions (e.g. a 7% CO_2 reduction from a 20% blend).
- Dynamic electricity tariffs and reforms to grid connection charges for controllable loads can lower green hydrogen production costs, improving economic viability.
- Policy incentives, carbon pricing mechanisms, and blend certificates linked to Emissions Trading Schemes (ETS) provide additional revenue streams and commercial incentives for producers and industrial users.
- Combining local hydrogen production with blending can reduce transport costs and further support economic viability.

Those who answered *"no"* (11 respondents) provided opinions such as:

- Evidence suggests that blending hydrogen into the gas network achieves only modest reductions in carbon emissions. For example, a 20% hydrogen blend by volume results in only a 6.6–7% reduction in CO2 emissions due to hydrogen's lower energy content compared to natural gas.
- Adapting the existing gas infrastructure for hydrogen blending would incur significant costs, both for technical upgrades and for ongoing management.
- Green hydrogen, which is costly and limited in supply, would be used inefficiently if blended into the gas grid, as its greatest decarbonisation impact lies in sectors that are hard to electrify.
- Blending hydrogen into the distribution system complicates domestic metering and could result in higher costs for consumers. In the transmission system, it may introduce technical challenges and risks to the security of supply.
- Once hydrogen is blended, it becomes difficult to track for emissions reporting, potentially undermining transparency and the credibility of decarbonisation claims. There is also a risk that blending acts as a short-term fix, delaying necessary decisions on the long-term future of the gas network and possibly locking in fossil fuel infrastructure.

15. In light of the cited research, how can hydrogen for transport in Northern Ireland be cost-competitive?

- 24 of the 38 (63%) respondents to the consultation answered this question (8 on Citizen Space, 16 via email).

Suggested ways to keep hydrogen for transport cost competitive included:

- Reducing production costs, achieving economies of scale, and leveraging local renewable energy sources particularly by situating electrolysers near renewable generation and demand sites.
- Financial supports, such as grants and operational subsidies, are crucial to offset the higher costs of green hydrogen compared to fossil-derived alternatives. Early policy intervention, clear regulatory signals, and strategic investment in infrastructure (e.g. pipelines, refuelling stations, and storage) will drive down costs and foster market confidence.
- Hydrogen is most suited for transport sectors that are hard to electrify, such as heavy goods vehicles (HGVs), shipping, aviation (especially for larger aircraft), coaches, and off-road machinery.
- Policy neutrality and a whole system planning approach are recommended, allowing for both hydrogen and electric technologies to develop according to their strengths and market needs.
- The high upfront and operational costs of hydrogen vehicles, limited suppliers, and the requirement for specialised knowledge are significant barriers. The small regional scale and limited journey lengths in NI further restrict the scope for hydrogen in road transport, potentially confining its use to a few refuelling hubs or non-road sectors.

16. Are there other major uses for low-carbon hydrogen that the Department should consider? Explain your reasoning.

- 18 out of 38 (47%) respondents answered this question fully (11 Citizen Space, 7 via email).
- 11 of the 18 (61%) respondents who answered this question said, *"yes",* indicating other major uses for low carbon hydrogen. 7 of the 18 (39%) respondents answered, *"no".*

Those who answered *"yes"* (11 respondents) provided opinions such as:

- Low carbon hydrogen is used for ammonia and related chemicals, supporting local fertiliser production, reducing import reliance, and providing export opportunities both as fertiliser and as a hydrogen carrier for international trade.
- Hydrogen production via electrolysis creates oxygen as a co product, which can be used for oxygen enriched aeration in wastewater treatment plants, increasing throughput and reducing energy use compared to conventional systems.
- Fuel cell Combined Heat and Power (CHP) applications (such as Solid Oxide Fuel Cells (SOFC)) may become viable, especially for large residential or industrial settings with steady electrical and heat demands, offering economic and emissions benefits if production and capital costs decrease.

- Injecting hydrogen into anaerobic digestion (AD) plants can enhance biomethane output via biological methanation, improving productivity and the decarbonisation value of AD facilities.
- Hydrogen can be used for energy supply in locations where extending electricity networks is prohibitively expensive, providing a practical alternative to grid connection.
- Hydrogen serves as a feedstock for various chemicals and synthetic fuels (e-fuels), supporting non energy industrial uses and decarbonisation of chemical manufacturing.
- Potential roles include production of alcohol to jet fuels and Dimethyl Ether (DME) as a substitute for LPG, with ongoing innovation projects exploring this.
- Those who answered *"no"* (7 respondents) advised that there were no further uses beyond those mentioned in the consultation, that the Department should consider.

17. Are there sectors/uses where low-carbon hydrogen should be used instead of other alternative renewable fuels?

- 18 out of 38 (47%) respondents answered this question fully (11 Citizen Space, 7 via email).
- 13 of the 18 (72%) respondents who answered this question said, "yes", indicating sectors/uses where low-carbon hydrogen should be used instead of other alternative renewable fuels. 5 of the 18 (28%) respondents answered, *"no".*

Those who answered *"yes"* (13 respondents) provided opinions such as:

- Hydrogen is well suited for shipping, heavy goods vehicles (HGVs), long distance coaches, and large off-road agricultural machinery, where battery electric solutions face limitations in range, weight, or charging speed.
- Hydrogen provides long-term, large-scale energy storage, outperforming batteries for extended storage durations.
- Hydrogen is essential as a feedstock for producing ammonia, methanol, and synthetic fuels, and is crucial for e-fuels needed in shipping and aviation due to their energy density and storage requirements.
- While biomethane and Hydrotreated Vegetable Oil (HVO) have been used for decarbonising transport fleets to date, the development of hydrogen refuelling infrastructure could make hydrogen a viable option for converting existing fleets to low carbon fuels.
- Hydrogen should be prioritised in sectors where electrification and biofuels are not technically feasible, cost effective, or scalable, particularly in hard to abate sectors.
- Hydrogen blending for home heating may offer lower air pollutant emissions than biomass boilers but should only be pursued where it delivers co benefits for health and the environment.

Those who answered *"no"* (5 respondents) did not provide applicable additional information.

Hydrogen Sector Development

18. In your opinion, how can policy aid the development of hydrogen-related supply chains?

- 27 of the 38 (71%) respondents to the consultation answered this question (9 on Citizen Space, 18 via email).

Suggested actions to improve hydrogen supply chains include:

- Establishing robust national strategies, targets, and timelines to provide long term certainty and confidence for industry, investors, and stakeholders, enabling commitment to hydrogen projects.
- Offering grants, subsidies, tax credits, loans, and revenue support mechanisms to de risk investment and facilitate project development, particularly for first of a kind (FOAK) demonstrators and early-stage projects.
- Mandating or incentivising the use of hydrogen (and e-fuels) in hard-to-electrify sectors and potentially acting as an offtaker of last resort to guarantee demand and stimulate supply chain investment.
- Developing hydrogen infrastructure (pipelines, storage, distribution), modernising regulatory and certification frameworks, and enabling necessary grid and network upgrades to support hydrogen integration.
- Encouraging local manufacturing and the growth of high value component production through cluster development, local content requirements, strategic procurement, and coordinated public sector support.
- Fostering partnerships between industry, academia, and government to accelerate R&D, innovation, and best practice sharing supported by initiatives such as hydrogen innovation hubs and accelerators.
- Aligning hydrogen policy with wider energy, climate, and economic strategies, ensuring policy coherence across renewables, storage, and decarbonisation efforts.
- Providing consistent, long-term policy signals and stable regulatory frameworks to reduce perceived risks and attract capital.
- Removing barriers to entry and supporting technology and market development in the context of Northern Ireland’s smaller scale and nascent hydrogen sector, including incremental and trial-based approaches.
- Developing supporting policies for feedstocks (e.g. biomethane) and biogenic CO_2 to underpin hydrogen and e-fuel production.

19. What skills or courses should be considered to train or upskill the industry workforce to develop the hydrogen sector?

- 23 of the 38 (61%) respondents to the consultation answered this question (9 on Citizen Space, 14 via email).

Suggested actions to help with hydrogen-based skills included:

- Focus on hydrogen specific safety procedures, regulatory standards, and emergency response. Training should ensure safe handling and maintenance of hydrogen systems, particularly for zero emission fleets.
- Provide development in mechanical, electrical, and chemical engineering, with advanced modules addressing hydrogen and clean energy technologies. Include maintenance and operation of hydrogen vehicles and infrastructure.
- Strengthen partnerships with universities and industry to offer research-led modules, hands on training, and industry placements, building local technical expertise and innovation.
- Embed hydrogen focused content into further education, apprenticeships, and short upskilling programmes, creating a coordinated pipeline of skills from construction through operation and maintenance for the hydrogen sector.
- Advocate for reforming the Apprenticeship Levy in Northern Ireland to allow greater flexibility such as supporting shorter training programmes to better address local workforce needs and skills shortages.
- Develop courses aimed at strengthening local hydrogen supply chains and building region specific specialist skills.
- Leverage Northern Ireland’s established engineering base, acknowledging the need for targeted upskilling in emerging hydrogen related areas.
- A comprehensive skills strategy, including hydrogen safety, gas network integrity and integration with existing engineering qualifications.

Regulatory Framework

20. What are the priority regulatory issues for the local hydrogen sector?

- 24 of the 38 (63%) respondents to the consultation answered this question (10 on Citizen Space, 14 via email).

Suggested key regulatory priorities included:

- Establish a clear, and robust regulatory framework covering the entire hydrogen value chain from production, transport, storage, blending, and end use.
- Appoint an appropriate regulatory body to oversee hydrogen policies, procedures, and certification.
- Expand the Utility Regulator's remit to explicitly support net zero and decarbonisation, facilitating coordinated transition and investment.
- Guard against undue influence from large corporations and ensure independent oversight, transparency, and public engagement in project evaluation and funding decisions.
- Support local projects access to UK wide funding mechanisms and enable "stacking" of production and demand side incentives for e-fuels and hydrogen projects.
- Ensure NI hydrogen projects can compete for DESNZ Hydrogen Storage and Transport Business Models.
- Enable access to renewable electricity from the wider Single Electricity Market (SEM) and Great Britain.
- De-risk and streamline grid connection processes for large-scale projects, including conditional or "connection in principle" pathways.
- Accelerate infrastructure development for hydrogen transport and storage, ensuring sufficient capacity for energy security.
- Simplify and expedite planning and permitting processes, especially for first of a kind (FOAK) and emerging low-carbon technologies.
- Clarify and update health and safety regulations, considering hydrogen-specific risks in production, transport, blending, and use.
- Harmonise safety and handling standards with UK and EU requirements.
- Adopt UK-wide Low Carbon Hydrogen Certification Scheme to ensure market access, compliance with decarbonisation targets, and eligibility for subsidies.
- Comply with environmental permitting requirements, including pollution prevention and control and ensure projects meet EU Industrial Emissions Directive requirements and consider impacts such as NOx emissions and water use.
- Include sunset clauses or periodic review to shut down or reassess hydrogen infrastructure if uptake is weak or technology shifts.

21. Do you agree with the Department's intention to appoint the Utility Regulator as the economic regulator for hydrogen?

- 28 out of 38 (74%) respondents answered this question fully (11 Citizen Space, 17 via email).
- 26 of the 28 (93%) respondents answered *"yes",* indicating support for the intention to appoint the Utility Regulator as the economic regulator for hydrogen. 2 of the 18 (7%) respondents answered, *"no".*

Those who answered *"yes"* (26 respondents) provided opinions such as:

- Utility Regulator (UR) already has established experience and authority regulating gas, electricity, and water, making it well suited to include hydrogen.
- Extending the UR's remit to include hydrogen, enables an integrated approach across electricity, gas, and hydrogen networks, supporting efficient energy system planning and decarbonisation objectives.
- Appointing the UR provides a clear and consistent regulatory framework, which is crucial for attracting investment, securing funding, and giving confidence to industry participants in the emerging hydrogen sector.
- The UR's appointment aligns Northern Ireland's regulatory practice with the wider UK.
- Respondents emphasised the need to update legislation (such as the Gas Order (NI) 1996) to give the UR explicit powers over hydrogen, and to design a robust, future proof regulatory framework that avoids ambiguity, supports innovation, and remains flexible.
- Early, active engagement with stakeholders is recommended to ensure the regulatory approach is tailored to hydrogen, avoids unintended barriers, and supports new business models and technologies.
- It is recognised that the UR will need additional technical expertise, resources, and coordination with relevant bodies (e.g. Health and Safety Executive) to effectively regulate hydrogen.
- Although supporting the appointment, one response noted that the hydrogen market is still nascent and cautioned that regulation should be introduced in line with market development.

Those who answered *"no"* (2 respondents) provided opinions such as:

- Argument for separation between general energy regulation and the specialised area of hydrogen, believing the regulator's broad remit limits effectiveness in the sector.
- The regulator's main focus should be on public costs and should not extend to commercial contractors or the provision of road and commercial fuels.

22. Do you agree with the Department's intention to adopt the Low Carbon Hydrogen Certification Scheme (LCHCS)?

- 29 out of 38 (76%) respondents answered this question fully (11 Citizen Space, 18 via email).
- All respondents who answered this question said, *"yes",* indicating support for the intention to adopt the LCHCS.

Those who answered, *"yes",* (29 respondents) provided opinions such as:

- Respondents cited the LCHCS credibility, transparency, and ability to ensure consistency across the UK market.
- Adopting the UK wide scheme is seen as critical to enabling cross-border trade and access to new low carbon markets, both within the UK and with the EU, particularly given NI's position in an all-island energy market.
- Respondents highlight that a common certification scheme supports investor confidence, unlocks funding and investment opportunities, and is key for large-scale projects, job creation, and industrial decarbonisation.
- There is consensus that the scheme must be compatible with EU Renewable Fuels of Non-Biological Origin (RFNBO) standards and allow flexible access to renewable electricity across the Single Electricity Market (SEM) and Great Britain, not just Northern Ireland generation.
- Several respondents advise ongoing engagement with relevant stakeholders including DESNZ to ensure continuous alignment and improvement.
- The need to monitor the evolving scheme, consider the potential for hydrogen imports/exports, and ensure compatibility with international regulations and certificate programmes is recognised as important for long term energy security and competitiveness.
- Respondents generally agree that Northern Ireland should mirror Great Britain standards to ensure parity and maximise benefits from UK-wide policies and funding

ANALYSIS OF ADDITIONAL FEEDBACK FROM STAKEHOLDER ENGAGEMENT EVENT

The stakeholder engagement workshop was attended by over 40 participants on 26th November 2025. Much of the feedback received from the participants mirrored the formal responses to the questions in the consultation. Therefore, the feedback presented below accounts for *exceptional information*, that does not appear in the formal consultation responses or provides additional information over and above the information included in the formal consultation responses. This information has been taken into consideration when providing the responses in chapters 2-6.

Funding for the local hydrogen sector

- Current curtailment funding methods are inefficient; resources should be redirected to support innovative solutions that utilise curtailed wind energy, such as hydrogen production via electrolysis.
- A flexible, regionally focused funding scheme—modelled on the HAR scheme but adapted for Northern Ireland—would better address local needs and encourage innovation.
- Legislation and funding frameworks should remain adaptable to support diverse project types and promote ongoing innovation in the sector.
- There is a supply and demand dilemma: investment in production is limited without guaranteed demand, and demand won't grow without reliable production; funding should support both sides, especially partnership-driven projects with anchor off-takers.
- Currently, reliance on private investment is restricting progress; dedicated and flexible public funding is required across the hydrogen value chain, including production, workforce development, and manufacturing support.
- Funding should accommodate the possibility of failure, recognising that unsuccessful projects still contribute valuable learning for the sector.

Dedicated hydrogen pipelines and alternative transport solutions

- Tube trailers currently provide a flexible transport and storage solution for NI's low hydrogen supply, especially for smaller or decentralised users. Road-based tanker transport remains important, especially in regions like the South West, and decarbonising vehicles could address emissions concerns.

Priorities for hydrogen storage in NI

- Prioritise immediate development of small-scale, localised hydrogen storage solutions due to current low production and demand. Tube trailers provide a practical and flexible method for transporting and storing hydrogen, particularly for decentralised or smaller users. These localised storage options are vital until hydrogen production scales up to justify larger, centralised storage facilities.
- Improving hydrogen compression technology is essential, as existing systems are bulky, expensive, and occupy substantial space. Efficient compression is critical for both storage and transport, influencing the feasibility and cost-effectiveness of all storage strategies.

Other major uses for low carbon hydrogen

- Data Centres: The potential exists for hydrogen to supply power to data centres, depending on their location and future development prospects in Ireland (e.g. subject to SONI approval) data centres, could be required to use hydrogen, which would stimulate demand and encourage investment in supporting infrastructure.
- Special Applications - Flexible, mobile hydrogen production units offer potential for diverse uses, including events (e.g. concerts) and construction sites. Military settings highlight hydrogen's value for off-grid power, for example by supplementing solar generation with fuel cells at army bases.

Support to develop the hydrogen supply chain

- Increased public education is needed to build acceptance and understanding of hydrogen.
- Clear communication should explain that hydrogen may not lead to immediate reductions in energy bills but can help stabilise costs and reduce volatility compared to natural gas.
- Widespread education also plays a crucial role in promoting the development of conversion skills in the workforce.

Gaps in skills or training provision

- Urgent requirement for upskilling in instrumentation, control, and engineering.
- Promotion of apprenticeships from age 16 and reskilling of existing trades for hydrogen and renewables.
- Curriculum updates and incentives to attract students to relevant courses.
- Funding challenges, particularly for conversion skills and older learners.
- Significant gaps at Level 3 and 5 qualifications—shortage of new entrants with hydrogen skills.
- Ongoing deficit in engineers, planners, M&E engineers, construction workers, and renewable technicians. Need to incentivise tradespeople to remain in Northern Ireland.
- Promotion of transferable skills (e.g. problem solving) inherent in trades like electricians.
- Knowledge sharing and project-based learning to build practical experience.
- Clearer certification standards and partnerships between industry and education providers required.
- Shortage of heat pump engineers and renewable technicians for routine work.
- Emerging need for hydrogen-to-power expertise, especially in Northern Ireland.

Regulatory barriers or uncertainties that need attention

- Planning procedures are described as complicated and drawn out, with statutory agencies working in isolation, contributing to significant project delays.
- Infrastructure expenses, particularly for grid connections, are increasing sharply (e.g. wind turbine costs have quadrupled), making projects financially challenging.
- Statutory consultees lack coordination, resulting in project applications being delayed until all agencies have responded.
- The presence of multiple regulators and departments with overlapping or unclear responsibilities leads to inconsistent procedures and additional delays. There are calls for a single regulatory body or team to streamline oversight for hydrogen and energy projects, especially in urgent situations.
- Certification procedures, are slow and burdensome (e.g. taking up to nine months), in contrast to more efficient processes in other parts of the UK.

ANNEX B: SUMMARY OF PREFERRED POLICY POSITIONS

Please find below a list of the Department's 'preferred policy positions' which were included in the consultation document:

- To ensure parity with the rest of the UK (and signatory partners on the international stage) on the standard of hydrogen being produced here, the Department will continue to promote the Low Carbon Hydrogen Standard.[5]
- The Department will focus on existing UK and island of Ireland wide funding streams as the means to support low carbon hydrogen production in the region.
- To reflect the role of hydrogen in our future energy mix, the Department will produce a hydrogen target focused on energy security.
- The Department is open to dedicated hydrogen infrastructure in the longer term, provided it is economically viable.
- The Department will support the long-term storage of hydrogen to help provide energy security and system flexibility.
- In relation to industry, the Department will support the use of hydrogen being focused in hard to electrify sectors across industry where economically viable.
- The Department will encourage the use of hydrogen to produce e-fuels and SAFs.
- The Department will prioritise biomethane as the primary means of decarbonising the gas distribution network. More evidence is needed before a final decision on hydrogen blending can be taken.
- The Department will promote electrification and explore renewable gases such as biomethane as pathways to decarbonise home heating, and to divert focus to areas where hydrogen has the most potential impact.
- The Department will appoint the Utility Regulator as the economic regulator for hydrogen.
- Rather than develop a local specific hydrogen certification scheme the Department will adopt the Low Carbon Hydrogen Certification Scheme.

5 UK Low Carbon Hydrogen Standard - GOV.UK