



Unlocking Low-Carbon Ammonia:
Jobs, energy resilience, and National Security

Dr Mike Rendall - Chairman

MariNH₃ Conference – 17th June 2026

MariNH₃

Clean, green ammonia
engines for maritime

Who are we?



The UK Ammonia Alliance is a coalition of pioneering companies with a shared mission:

To maximise the strategic role of ammonia for a more secure and sustainable future.

We are focused on creating a supportive environment for a range of UK industries to adopt low-carbon ammonia solutions at-scale.

- The UKAA was **established in October 2025**.
- The Alliance was created **to address a critical gap in policy and funding** for low-carbon ammonia projects in the UK, as well as to bring together businesses across the value chain to **support market development**.
- The UKAA now serves as **the unified voice** for growing the UK's low-carbon ammonia market.



Why have we formed?



Decarbonise British Industries

Transition vital sectors to low-carbon ammonia and adopt ammonia at-scale for new applications, including power generation, maritime, and hydrogen transport and storage.



Strengthen energy and food security

Build up secure supply chains for low-carbon ammonia, reducing reliance on global, volatile fossil fuel markets.

Drive investment and growth

Attract significant investment into ammonia solutions, products, facilities and infrastructure, creating high-value jobs and boosting British supply chains and exports.



What's our mission?

1

Connect technology developers, producers and end users to scale up the UK ammonia economy

- Boosting energy security, creating skilled jobs and **accelerating decarbonisation opportunities**



2

Accelerate the development of low-carbon ammonia technologies

- Position the **UK as a leader** in low-carbon ammonia innovation
- Work with key Universities in the UK to progress research to secure **strategic positioning**



3

Working with government to help educate and shape policy on ammonia across sectors

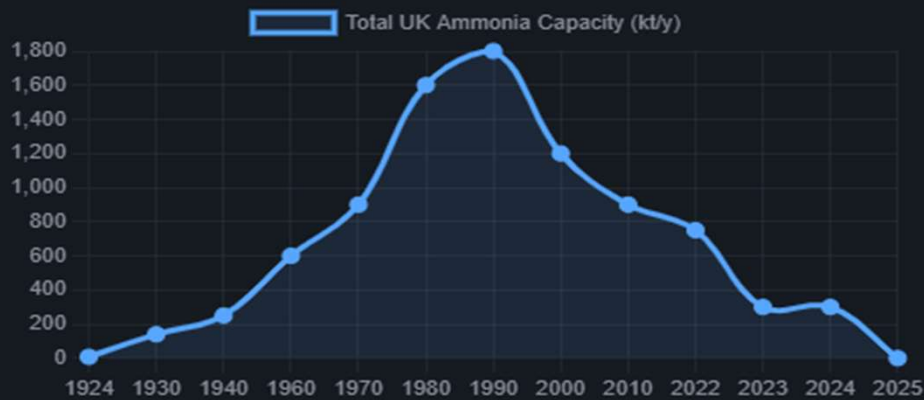
- Developing policy materials and communications to raise awareness.
- Engage with organisations and trade associations globally to improve **international regulatory alignment and cross-border collaboration.**

So, that's ambitious....

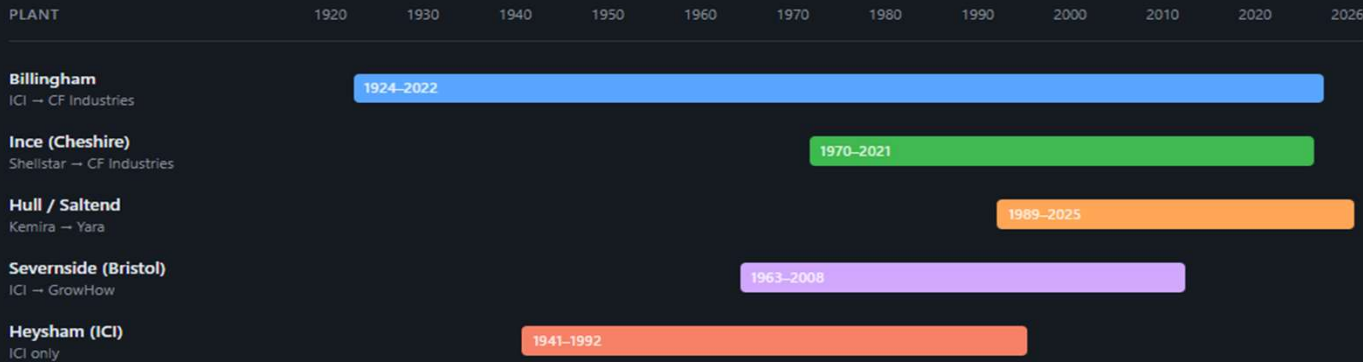
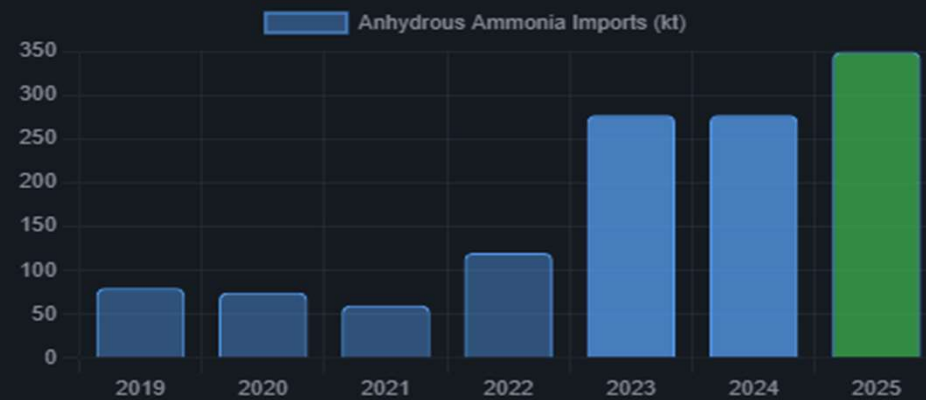
**But don't we already
have that?**

The UK's ammonia legacy

UK Ammonia Production Capacity Over Time (estimated, kt/y)



UK Ammonia Import Volumes (kt/y)



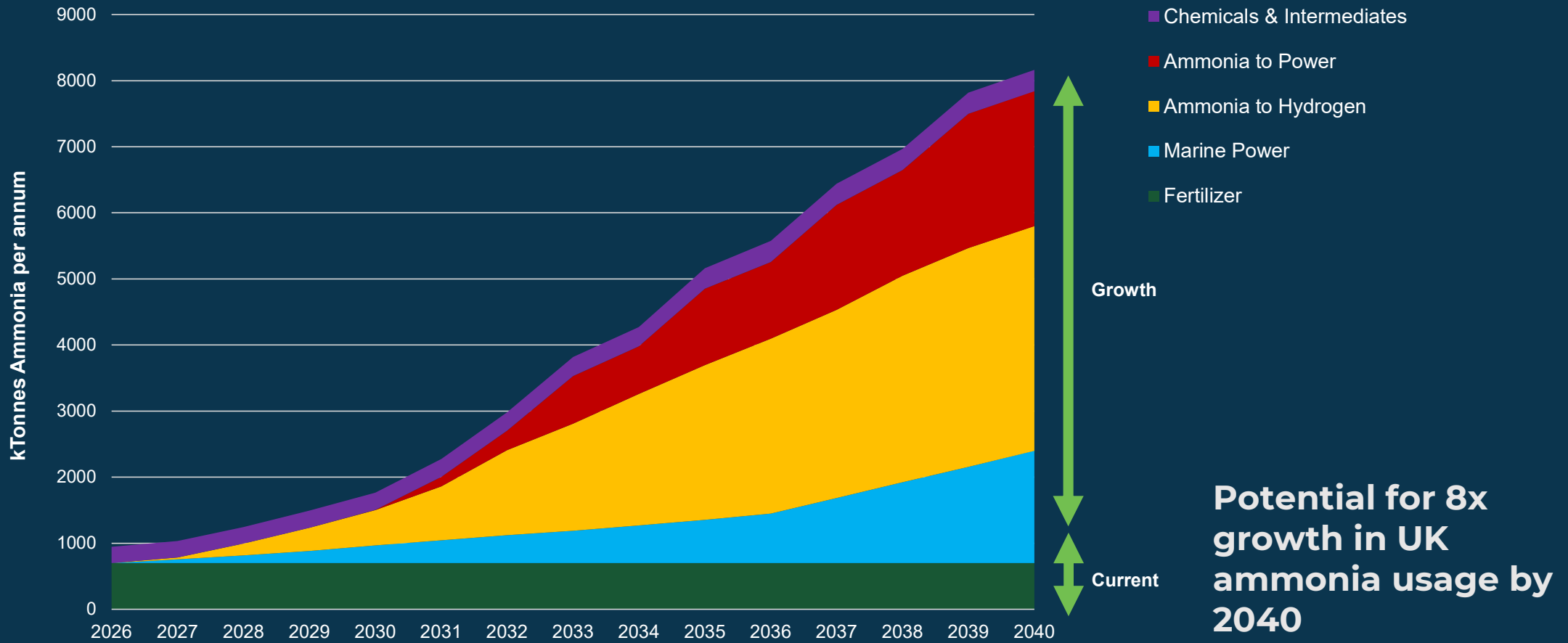
- **Peak UK ammonia production** in the 1990s of **~1.8MT**.
- International competition eroding UK position due to **lower gas prices**.
- Consolidation resulting in **further plant closures**.
- **Russia-Ukraine conflict** causes surging gas prices and **remaining plants to close**.

What are the growth sectors?

- There is a compelling case for the UK to rebuild its ammonia industry, given its:
 - **Longstanding ammonia heritage** – with existing skills, expertise, and infrastructure
 - **World-class R&D base**
 - Geographical location as a **strategic import-export hub**
- This will enable sectors currently using ammonia (such as refrigeration and fertiliser production) to **transition to low-carbon ammonia** over the next decade, as costs stabilise.
- There is strong market growth potential as low-carbon ammonia becomes safely adopted as a new energy backbone:
 - As a **combustion fuel**
 - As a **hydrogen carrier**
 - As an effective, low-cost bulk **energy storage** solution.



What could the growth look like?



UK low-carbon ammonia roadmap

Expected milestones in the development of the UK market for low-carbon ammonia



Hydrogen

- The UK's first regional hydrogen transport and storage network opens in 2022, 2023 and 2024, with hydrogen production projects also commencing.
- A hydrogen transport and storage network expands, helping to ease carbon emissions and to ensure security of hydrogen supply, for local power networks, serving sectors that require large volumes of hydrogen, which cannot be immediately met by domestic hydrogen production capacity.
- The Capital Hydrogen programme, led by Cabinet, National Gas and SOR, has identified up to 2.7 TWh of hydrogen demand by 2035 along the "Three Corridors", and only 800MM hydrogen production potential in London by 2035, leaving a significant gap. This additional production capacity is being developed by the "Hydrogen Hub".

Transport

- As the maritime industry accelerates its transition to decarbonisation, shipping 84% of the time demand for ammonia grows significantly to approximately 1100 Mtpa.
- Under the National Energy Strategy, the UK Government's 2024 Hydrogen Strategy, by 2030, ammonia increases to 24% to 25% of domestic shipping fuel demand, under its "Relevant pathway". The Seventh Carbon Budget projects that ammonia will cover 25% of shipping energy by 2035.
- Under the Maritime Decarbonisation Strategy's "more ammonia scenario", approximately 50% to 62% of domestic shipping will be ammonia by 2035.

Power

- UK Energy Storage aims to deliver significant long duration energy storage in the form of hydrogen, 300 TWh by the target period of 2035, with the UK and EU use cases for hydrogen storage network in line with strategic objectives such as the following:
- Low-carbon ammonia is a start to 24-hour high heat or storage needs and solutions, where it is in converted into ammonia co-firing technology. This is a response to the existing gas capacity in the UK.
- By the end of this period, ammonia replacing 20% to 30% of annual coal-fired capacity.

2036 onwards

- It is expected that, by this time, all UK power will be generated by low-carbon sources, with the UK's ammonia production capacity to meet the demand for power generation. For example:
- UK's major heavy industries will have developed ammonia firing, capable of reducing CO₂ to hydrogen in industrial cases, as the technology has been validated in real-world conditions during the 2020-2025 period. Further commercial efforts will depend on global policy developments, market demand, and the availability of low-carbon, cost-competitive ammonia. Fuel being tested in real-world conditions, and in a range of commercialisation technologies.
- In 2023, Mitsubishi Power Europe signed a Memorandum of Understanding with Centrica to explore the development, construction and operation of Europe's first ammonia-fired power generation.

2026-2025

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Low-carbon ammonia roadmap

2026 - 2029

Supply

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2030 - 2035

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2024 - 2025	2030 - 2035	2038 onwards
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<p>Demand (Gtpa average annual demand in the period)</p> <ul style="list-style-type: none"> 2024: 100,000 2030: 1,000,000 2038: 10,000,000 	<p>Demand (Gtpa)</p> <ul style="list-style-type: none"> 2030: 1,000,000 2035: 1,000,000 2038: 10,000,000 	<p>Demand (Gtpa)</p> <ul style="list-style-type: none"> 2038: 10,000,000 2040: 10,000,000 2045: 10,000,000
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Publishing soon

Low-carbon Ammonia Roadmap

Expected milestones in the development of the UK market for low-carbon ammonia

JUNE 2025

- The UKAA's low-carbon ammonia roadmap is a first-of-its-kind document that demonstrates how the UK market will grow in coming years.
- Following a UK-first industry survey, sets out forecast demand and socio-economic benefits.
- Covers the growth in adoption of low-carbon ammonia across agriculture, industrial processes, maritime, power and hydrogen.

UK Ammonia Alliance Academics Forum



- Provides **independent academic expertise** to support UKAA's policy development and research activities.
- Strengthening the **quality, robustness and credibility** of UKAA policy recommendations and engagement with government regulators, industry and other stakeholders.
- Made up of academics and professors from University of Bath, University of Birmingham, University of Cardiff, and University of Nottingham. Their work spans **ammonia as a fuel, ammonia safety and public perceptions of the use of ammonia**.
- Provided advice during the production the UK Low-carbon Ammonia Roadmap.



UNIVERSITY OF
BIRMINGHAM



The University of
Nottingham



Low-Carbon Ammonia Case Studies

Case study 1 : *UK production of zero-carbon ammonia*



Statkraft intends to **downstream process the hydrogen produced at several of its UK sites to low-carbon ammonia**. This will support the **revival of UK domestic ammonia production**, a capability lost in 2023.



Statkraft – Europe’s largest generator of renewable energy – develops wind, solar, hydropower, storage, grid stability, and green hydrogen in the UK.

Statkraft’s UK Shetland Hydrogen Project 2 is expected to produce around 280,000 tonnes of ammonia each year, once operational in the early 2030s.

Statkraft’s projects will support the decarbonisation of hard-to-reach sectors and use of ammonia as a low-carbon energy carrier.

Case study 2 : Ammonia cracking for decentralised hydrogen production

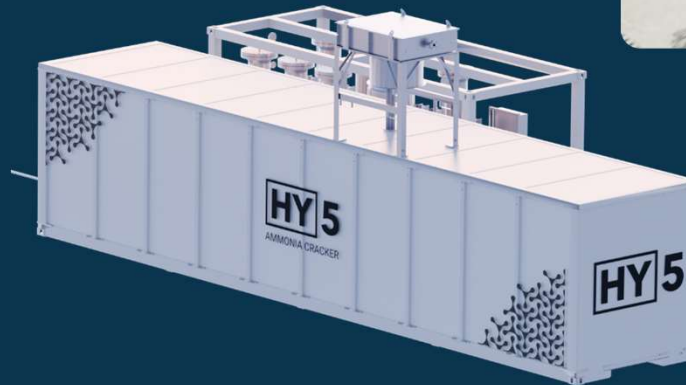


In 2025, UK businesses H-Power PLC (*previously AFC Energy PLC*) and Industrial Chemicals Group Limited (ICL) formed a joint venture **to commercially produce and sell unsubsidised hydrogen cracked from ammonia, starting this year.**

AFC Energy PLC is currently cracking low-carbon ammonia into hydrogen for their fuel cell products, at their pilot plant near London. They are bringing to market **a containerised ammonia cracking hydrogen generator** capable of producing up to 500kg of low-cost hydrogen per day (the Hy5).

ICL is one of the UK's largest independent chemical manufacturers and distributors, managing **ammonia supply and logistics.**

Together, they plan to scale low-cost green hydrogen production from ammonia, to supply clean power to **hard-to-electrify sectors**, including heavy industry and transport.



The Future?

- We want to rebuild the **UK's ammonia industry** based on a transition to lower-carbon ammonia.
- To meet future demand growth, the ammonia ecosystem must be developed:
 - **UK import hubs** to facilitate movement and storage of ammonia, and support adoption of ammonia fuelled vessels
 - Domestic **ammonia production facilities**
 - Continued **investment in ammonia R&D**
 - **Transitioning current ammonia users**
 - **Re- and up-skilling workers**
 - Enabling growth of new **Ammonia to Hydrogen (A2H)** and **Ammonia to Power (A2P)** sectors
 - Commencing **decarbonisation of hard-to-abate heavy industries** using ammonia as a fuel or hydrogen carrier
- **The work to build this new ammonia ecosystem is underway.**
- The UK Ammonia Alliance is collaborating with UK Government officials to develop the policy and funding frameworks, standards, and processes to enable a timely transition.





UK Ammonia
Alliance

Thank You

For more information or to explore
membership, please contact

secretariat@ukammoniaalliance.co.uk

