



“The Tortoise and the Hare”: It’s a Long Race for the Hydrogen Economy



Aaron Fleming

Co-Head of Industry Group, Energy and Natural Resources Asia Pacific

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As part of a global push to decarbonize element production, green hydrogen has emerged as an alternative to the production of traditional gray hydrogen, and it could dramatically reduce CO₂ emissions in the world.

The long-term potential of green hydrogen and its entire ecosystem, including transportation, infrastructure, and vehicles, is huge. However, as a new market, the demand side is still lacking meaning final investment decisions, supply dates and high-quality projects continue to be pushed out.

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The issue with demand is related to the high cost of implementing pilot projects and the current lack of end customers. The petrochemical industry, transportation sector and heavy vehicles all aim to decarbonize but are faced with a huge cost barrier that's almost doubling the cost of the product.

Whilst we are seeing a few high-quality projects in progress from larger organizations, independent developers are not able to achieve final investment decisions and raise the required funding.

In this case, a key motivator for companies to pursue green hydrogen projects would be if governments outlined more specific green hydrogen or carbon emission targets for all companies to strive for.

Many governments, such as China, have already started issuing hydrogen strategies to enhance the hydrogen ecosystem. With modest subsidies, or even without, green hydrogen could be achievable in an industry such as heavy vehicles and cost competitive with diesel over time. Today, we have around 95 million tons per annum of global hydrogen demand, and 98% of that is from traditional gray sources. Even in the 2030s, there is forecast to be just 16 million tons more demand, taking us up to 111 tons per annum. Of this growth, most is expected to come from low carbon green sources, with only limited amounts of gray replaced by green. However, by 2050, this figure is forecast to be much more significant at 273 million tons, again with nearly all the growth coming from new green hydrogen demand.

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In Asia Pacific, the key industries for the hydrogen economy will be heavy transport in the short term, and the power sector and heavy industries like steel, in the mid-long term. Countries naturally endowed with renewable energy resources that should play a meaningful role in green hydrogen production are Australia, India, and the Middle East.

The big challenge with low carbon hydrogen compared to renewable power, is if the cost is reduced for renewable energy, the demand is already there. However, with low carbon hydrogen, there's a limit to what you can replace in terms of the existing gray. This means most hydrogen growth is expected to come from new end use, rather than existing hydrogen. This relies on technological developments, such as reducing iron with hydrogen rather than metallurgical coal.

Implementation of the green hydrogen economy will require fundamental changes to carbon footprint across various sectors. Policy steering and government intervention is needed to support the level of investment required. Despite the huge opportunity to decarbonize hydrogen, it's still currently at the discussion and exploration stage, rather than rapid deployment. At Natixis CIB, we have been active in the hydrogen space and playing a meaningful role for a while, led by our team in Europe where governments have mandated low carbon policies and targets more aggressively.

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In Asia Pacific, China has the potential to parallel the success of renewables in green hydrogen in terms of achieving lower cost production and economies of scale. With strong involvement from the government to direct positive outcomes, there is no doubt it will get done. Over the years, Chinese companies have been able to get their costs down, operate efficiently, and replicate their business in other countries. There is no technical reason Chinese companies couldn't go to India, Australia, or the Middle East to deploy their expertise and technology there.

However, realistically, we are first looking at the 2030's as a timeframe. It's a long race for the hydrogen economy, much like the race of the tortoise and the hare. There's no point rushing to be the winner of something next year when you can be a much more material winner in ten years' time.

To advance the hydrogen ecosystem, technology providers and construction companies that are providing equipment must leverage R&D to achieve technology advancements, fine tune the products and scale up production without any substantial orders.

Government policy is also a hugely important influencing factor in the timeframe to 2030. To develop a green hydrogen project, government lobbying is a must to influence buyers, then there is also the debt funding and equity funding requirements from strong sponsors.

A few years ago, there was a flurry of project announcements, and the market got excited. Since then, only a few have emerged to take the final investment decision and begin construction, meanwhile the vast majority have been delayed. At Natixis CIB, we continue to be active in several areas across Asia Pacific, especially around raising equity and supporting offtake negotiations.

The buildup for green hydrogen is just starting now, but with the seeds that are being sown today it's only a question of when, as to the huge impact it will have in decarbonizing the global economy.