Ørsted's halt on hydrogen plant highlights synthetic fuel challenge

Ørsted, widely considered the greenest energy company in the world, recently decided to stop the construction of a plant for hydrogen-based fuel. There's no clearer sign of the bumpy road ahead for synthetic fuel in aviation and shipping

Complex business case for synthetic fuel

Ørsted, the world's largest offshore wind developer, announced this month that it would no longer build an e-methanol plant to develop sustainable fuel for hard-to-abate industries like aviation and shipping.

Work on the Swedish plant began just a year ago and the plant was intended to produce about 55,000 tons of e-methanol per year from hydrogen and CO_2. Mads Nipper, the CEO of the company, cited a weak business case as the primary cause for the project's discontinuation. Lower than anticipated demand for green methanol, high technology costs - even with subsidies – and high interest rates and construction costs all add to the complexity.

For us, the cancellation itself was not the biggest surprise, as we have shown before that hydrogen-based fuel is much more expensive than fossil fuel in every sector where it is used. In aviation and shipping, it could be up to 10 times more expensive (see graphs below).

Ørsted is widely considered the greenest energy company in the world. The fact that even this company is struggling to make the investment is the clearest possible sign of the complex business case for synthetic fuel. A month earlier, Shell decided to stop the construction of a plant for bio-diesel in Rotterdam. However, Shell's CEO Wael Sawan has been very open about the company's goal to increase shareholder value and get rid of renewable energy projects which yield low returns.

Lessons learnt

So, what to make of this? The road to sustainable fuel is turning out to be bumpier than many had hoped. This is not just true on the production side, but on the demand side, too, as Boeing's CEO David Calhoun made perfectly clear: "There is no cheap way of decarbonizing aviation".

An important lesson for all involved in the transition to a net-zero economy is that the economic viability of the business case is frequently overlooked. This oversight occurs in many transition strategies, both at the sector and corporate levels. Typically, these plans portray the shift as a seamless and rapid progression towards the years 2040 or 2050. However, the actual journey is proving to be more tumultuous than anticipated.

Another lesson is that systemic change towards a greener future is a multistage process.

The first phase is all about inventing an alternative fuel that can replace fossil fuel. The shipping and aviation sectors have passed this stage of developing and testing more sustainable fuel.

The second phase focuses on introducing these solutions to the market, acknowledging and rewarding the companies that succeed in doing so (praise the winners), while also addressing those that fall behind (name and shame the laggards). From our perspective, it's concerning that even leading companies such as Ørsted are struggling to lead this phase of the transformation.

Fortunately, there are companies like Maersk which are actively forming alliances to expand the use of methanol and ammonia as fuel. Additionally, the previous orders for dual-fuel vessels are now starting to be operational, which is crucial for this stage of the transition.

Routine correction or start of a trend?

Should the decisions by Ørsted and Shell indicate a broader trend of project cancellations, the implications could be significant. Such a trend might hinder the sector's progression to the third phase, which focuses on the expansion of greener fuel, bolstered by government policies.

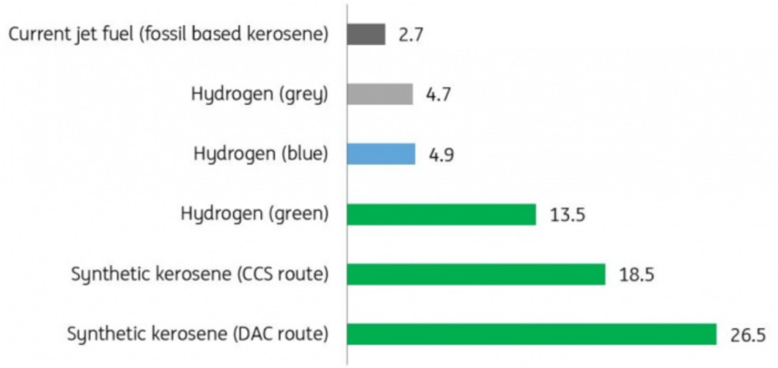
Consequently, this could postpone the fourth and final stage, wherein sustainable fuel is established as the 'new normal' and replace the current fossil-based fuel supported by policies that 'hospice the dying activities and companies'. Think of training programmes for workers who lose their jobs in the fossil economy so they can take on green jobs.

These setbacks in the viability of greentech's business case are not confined to aviation and shipping alone. The Financial Times recently calculated that 40% of the biggest greentech investments under the much-praised US Inflation Reduction Act have been delayed or paused. And that involves projects for electrolysers, electric vehicles, renewables, sustainable fuel and semiconductors. All are important in a low-carbon economy.

The long-term effects of these recent announcements remain to be seen. Should this merely be a routine correction, aligning inflated expectations with reality—a process often ignored—we maintain an optimistic outlook. In fact, this recalibration could be beneficial if it redirects the attention of policymakers and executives from setting higher ambition levels to policies that support tangible action. More emphasis on and supporting policies for viable business cases could act as a welcome relief. However, the possibility that this indicates an emerging, troubling pattern, potentially heralding further adverse developments and setbacks, cannot be dismissed. This is not unprecedented; after all, the initial journey of solar panels and wind turbines was also fraught with challenges.

A business case perspective: hydrogen-based fuel in aviation is up to 10 times more expensive...

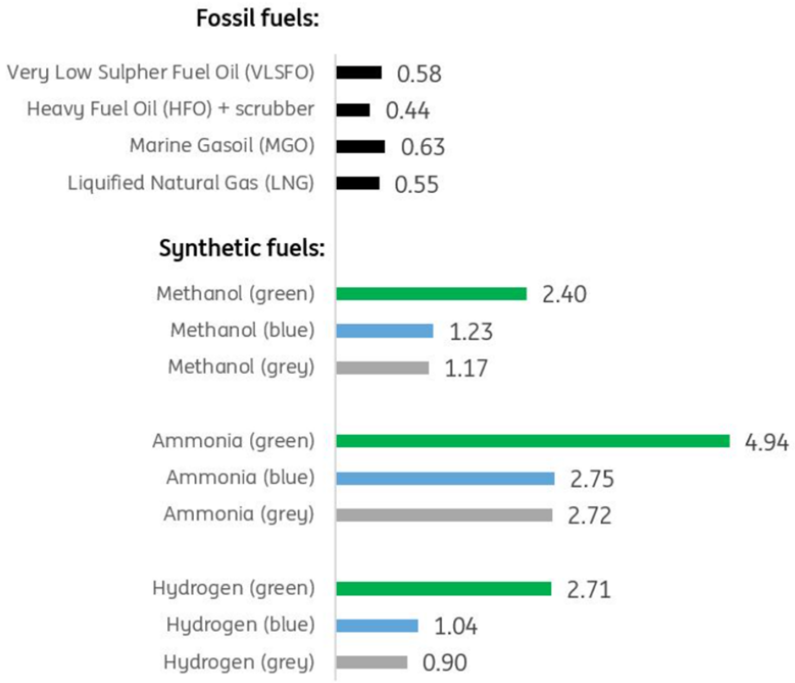
Indicative unsubsidised cost of kerosene and synthetic fuel in euro cents per seat per kilometer



Source: ING Research

...and this is also the case in shipping

Indicative unsubsidised cost of shipping fuel in euro per dead weight tonnage per 1.000 kilometers (euro/DWT/1.000km)



Source: ING Research

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