Green ammonia off-take agreements limited for now

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Initial agreements for the off-take of green ammonia from projected plants could indicate which companies are set to move first in this developing industry.

As pressure continues to build for companies and countries alike to reduce emissions and move towards renewables, the momentum behind green ammonia production continues to gather pace. Announcements for green ammonia projects have continued to stimulate industry excitement over the last 18 months and show little sign of slowing.

Fertiberia's 17,000t/yr plant at Puertollano in Spain is expected to be one of the first facilities of significant capacity to be commissioned and is due to come on line early this year. There are a further four projects scheduled for start-up this year in Australia, Denmark and Norway totalling 58,000t/yr capacity. And Indian solar producer ACME recently confirmed that the first phase of its 1mn t/yr green ammonia facility in Duqm, Oman will be complete in 2023, following the successful commissioning of its 1,800t/yr facility in Bikaner, India in late 2021.

The industry is tracking these early projects closely as the feedback from these first-to-market plants is likely to have significant ramifications for those larger pipeline projects which hope to attract both final investment decisions and off-take agreements.

Off-take agreements

Many companies have confirmed intentions for their green ammonia to be sold into the export market, although few have offered details of the off-take structure. Such agreements are likely to determine which will be the first key players in this developing industry.

Currently, Australia, the US, Oman and Chile have announced the largest expected production capacities. Australia is set to become a global leader in green ammonia production, with nearly 35mn t/yr in speculative capacity from 14 different projects and completion dates set between 2022 and 2030. Just 420,000t/yr of this capacity has been allocated to an off-take agreement between Japanese transport company Mitsui OSK Lines and Origin Energy at its Bell Bay plant.

This could present opportunities for companies looking to operate in the region, or suggest that further announcements may be on the horizon.

Trammo is currently set to become a key player in the green ammonia space, with initial agreements with three different companies. The company has an off-take agreement with the ASOE Chile Diez plant for 1mn t/yr, and another with Proton Ventures in the Netherlands. The trader also has an agreement with Lotte Fine Chemicals to supply green ammonia in South Korea.

Fertiglobe intends to set up a 200MW green hydrogen plant to produce green ammonia in UAE, which is due to come on line in 2025. The company will be the sole long-term off-taker. The project followed another Fertigobe announcement in November of a planned new 100MW electrolyser in Egypt in collaboration with Scatec, which will be likely to follow a similar off-take structure.

The biggest off-take agreement so far is the exclusive contract between AirProducts and Neom, for the 1.2mn t/yr plant in Neom, Saudia Arabia. AirProducts intends to transport the product globally to be dissociated to produce green hydrogen for the transportation market.

But the details and number of initial supply agreements remain limited for now. With many questions still surrounding the cost of renewables and locations of end-user markets, further off-take agreements are likely to be contingent on the success of near-term projects. Any increase in the pace of such agreements being announced could indicate growing industry confidence in the viability and success of low-carbon ammonia.

Data outlining the first production projects and agreements in place can be downloaded here

By Lizzy Lancaster

Top green ammonia producing regions		000t
Country	Expected capacity	Off-take agreements
Australia	35,000.0	-
Oman	11,245.0	1,330.0
US	19,540.0	-
Chile	3,000.0	1,000.0

Saudi Arabia	1,200.0	1,200.0
Denmark	905.0	-
Norway	646.0	-

— Argus