

Personalised for:
Yoana Cholteeva

15 October 2021

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Air Products unveils plans for USD 4.5 billion blue hydrogen plant in Louisiana

US industrial gas firm Air Products has unveiled plans to build a USD 4.5 billion “clean energy complex” in Louisiana which will produce blue hydrogen. The project fits with firm's aim of becoming a world leader in the production and supply of hydrogen, and aligns with Louisiana's decarbonisation push.

As part of Air Products' largest-ever investment in the US, the company will build, own and operate the megaproject, planned to produce over 750 MMcf/d of blue hydrogen in Ascension Parish, Louisiana.

The megaproject, which is expected to be operational in 2026, will also include what the firm calls “the world's largest instance of CO₂ capture for permanent sequestration”.

Commenting on the development, Stephen Harrison, managing director at sbh4 told Gas Matters Today that the project will be “larger than similar ‘blue energy island’ projects which integrate CCS, air separation, auto thermal reforming and ammonia production that are under consideration in The Netherlands and the UK, for example the H₂Saltend project that is part of the Zero Carbon Humber scheme.”

As part of the plan announced on Thursday, over 5 mtpa of CO₂ will be permanently stored one mile beneath the surface on land secured from the State of Louisiana. The company has already received state approval to permanently store CO₂. The sequestration sites are located along a pipeline corridor extending up to 35 miles to the east of the new production facility.

However, only 95% of the CO₂ generated at the facility will be captured and stored, raising questions over how “clean” the Clean Energy Complex really is.

Air Products said a portion of the blue hydrogen will be compressed and supplied to via its US Gulf Coast hydrogen pipeline network, which is the largest hydrogen pipeline system in the world, stretching more than 700-miles from Galveston Bay in Texas to New Orleans, Louisiana.

The Gulf Coast pipeline network can supply users with more than 1.6 Bcf/d of hydrogen from approximately 25 production facilities, including blue hydrogen from the Air Products' Port Arthur facility in Texas.

The Port Arthur facility has captured ~1 mt of CO₂ annually since 2013, with the CO₂ transported via pipeline and used for enhanced oil recovery operations.

In a bid to transport the hydrogen abroad from the new Ascension Parish facility in a cheaper and more efficient way, it will be converted into blue ammonia beforehand and then turned back into blue hydrogen for transportation and other markets.

One industry expert told Gas Matters Today: “Interestingly, the exported hydrogen, for the first time I've seen, will go as ammonia and be converted back to hydrogen at the destination/user. It

sounds like Air Products have an extensive hydrogen network already on the US Gulf Coast, so I think it will be a case of 'build it and folks will come,' so this could create quite a demand in the region."

With the uptick in forecasts suggesting that there will be solid markets for blue hydrogen and blue ammonia both in the US and internationally, Harrison said: "With abundant quantities of low-cost natural gas in this region of the US as a feedstock, it is likely that this project will produce these blue energy vectors at a highly competitive price, which would make domestic and international markets addressable."

With ammonia being more energy-dense, easier to liquefy and cheaper to transport, HSBC said in a research note earlier this year that gas-based blue ammonia will take the biggest share of future hydrogen transportation, compared with renewable ammonia, as the hydrogen economy comes with steep cost of transportation, which could be as much as three times the cost of production.

"Over time, blue ammonia may become as important as LNG is today as an energy export for the US and other gas-rich nations," Harrison said.

The blue hydrogen project in Louisiana is the latest hydrogen project proposed by Air Products – which is looking to be a world leader in the production and supply of H₂.

"We continue to make significant investments as the world leader in the production and supply of hydrogen," Air Products CEO Seifi Ghasemi said in a statement.

"In addition to our leadership in gray hydrogen, our Canada project and this Louisiana project make us the leader in blue hydrogen. We also will be the world leader in the production and supply of green, carbon-free hydrogen when the NEOM Project [in Saudi Arabia] comes onstream," added Ghasemi.

Air Products CEO said the energy transition "will occur in stages" and that the megaproject will help Louisiana "meet its ambitious goals while providing new sources of blue products for customers in the U.S. and around the globe."

In August, Louisiana Governor John Bel Edwards announced the state will commit to reach net zero emissions by 2050. - YC



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