

EMERGING TECHNOLOGIES

Direct Air Capture Players Remain Optimistic Despite Headwinds

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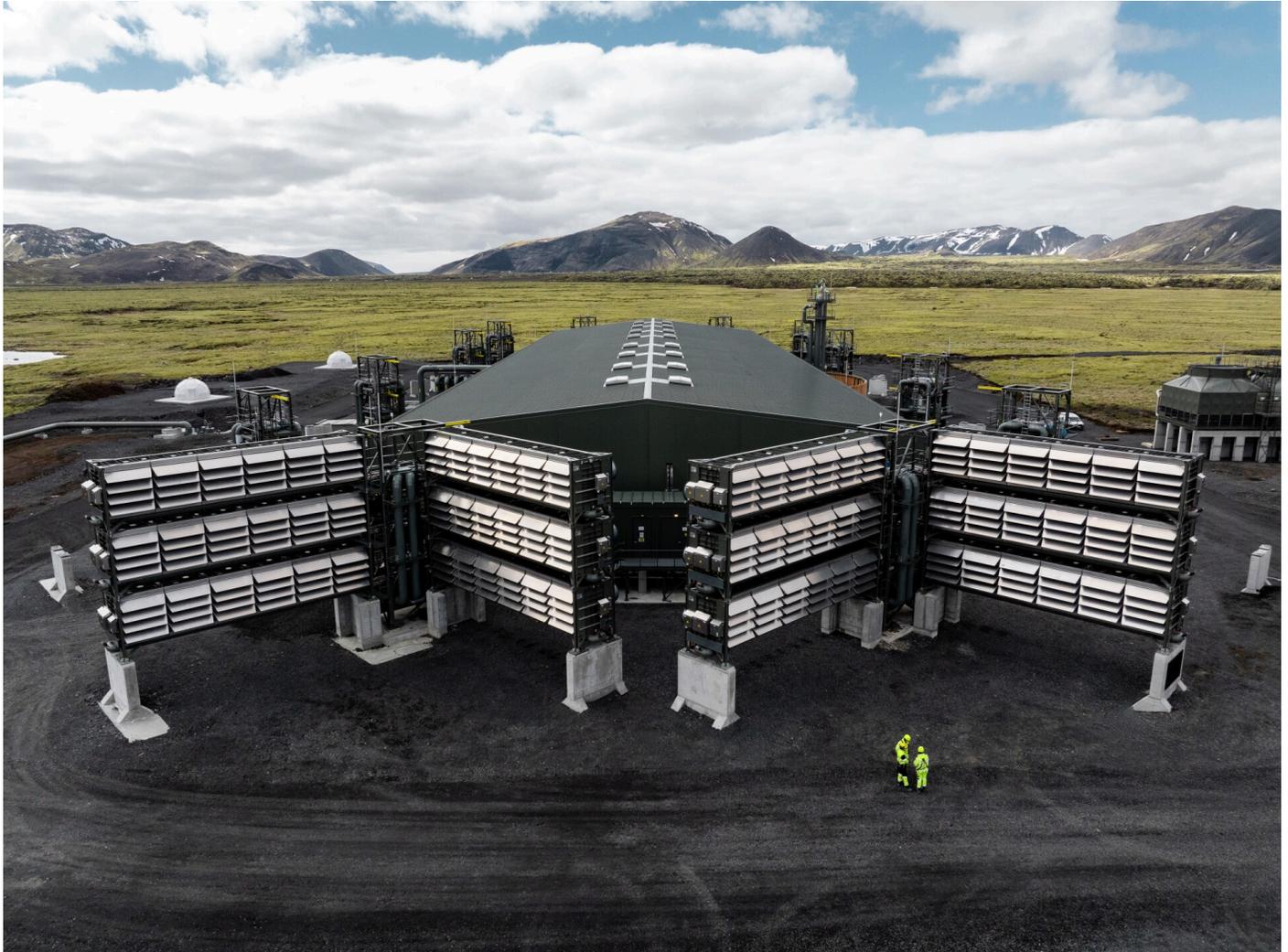
Wed, Mar 19, 2025

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Climeworks

Direct air capture (DAC) is entering into the "show me" stage, where multiple companies are moving from pilots to full-scale projects. Indeed, several companies such as the US' Avnos, Clarity Technology and Origen Carbon announced new projects during the Global DAC Conference in New York this week. Unfortunately, climate solution technologies are currently facing headwinds, particularly in the US, speakers at the conference said. They were, however, optimistic that supportive US policies such as the "45Q" tax credit scheme, the DAC Hubs program and the Carbon Dioxide Removal Purchase Pilot Price will mostly survive the change of US administration.

Actively Silent

While companies are still willing to buy carbon credits from DAC and other CO2 reduction (CDR) technologies, many want to remain "actively silent" about it, nonprofit Terraset CEO Adam Fraser said. In contrast, JPMorgan Chase remains open about its goal to address its Scope 1 and 2 emissions, or about 100,000 metric tons per year of CO2, with CDR credits, said Brian DiMarino, the bank's deputy director of global sustainability. This is "massively important" for the sector, said DAC pioneer Climeworks' Julius de Groot.

To keep US government support, DAC companies should mostly focus on side benefits of the technology such as innovation, job creation and international competitiveness, said Savita Bowman of ClearPath Action, a conservative climate advocacy. "Carbon emissions reduction alone doesn't work anymore as a standalone proposition," she insisted. DAC and other CDR technologies are also "critical" to maintaining US energy leadership and its long-term social license to produce and export fossil fuels, Bowman believes. Likewise, emphasizing economic opportunities such as the production of green fertilizers and e-fuels can also play a role. For example, Avnos' Brighton project, located in New Jersey, is supported by the US Navy, which is interested in potential e-fuel applications. "So far, support from the Departments of Defense and Energy has remained unchanged," CEO Will Kain told Energy Intelligence.

Beyond the US

Beyond — and sort of in opposition to — the US, countries such as Canada, China, Kenya and Brazil see opportunities to develop a strong DAC industry, speakers at the New York conference's international panel emphasized. Alberta, which offers unique storage potential, skilled workforce and solid political support, could make up for any "policy vacuum" in the US, said Na'im Merchant, executive director at Carbon Removal Canada. Likewise, Kenya has gigatons of storage capacity and, potentially, gigawatts of renewable energy in the Great Rift Valley, said Africa Climate Ventures CEO James Mwangi. Climeworks and Chinese technology giant Tencent have each recently announced they were considering DAC projects in Kenya.

While small, the 150-company-strong DAC industry has been growing rapidly in the past couple of years, said the DAC Coalition's Aaron Benjamin. Global installed capacity is expected to grow from 62,000 tons/yr in 2024 to 574,000 tons/yr by the end of 2025, mostly thanks to Occidental Petroleum's Stratos project and its 500,000 ton/yr first tranche. Another 50 facilities are expected to be commissioned over 2025-27 and to add almost a million tons per year of new capacity. By 2032, the world's global DAC capacity could reach 5.5 million tons/yr, a "hugely conservative" estimate according to Benjamin — but a long way to the gigaton scale climate models say would be needed to keep global warming manageable.

Besides Stratos' 500,000 ton/yr second tranche, large planned projects include Octopus, a 500,000 ton/yr unit announced by South Korea's K-Water and BKT and the US' Capture6, and several units totaling 250,000 tons/yr in Greece, France and Kenya announced by Israel's RepAir Carbon.

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