



CDR AS AVIATION MITIGATION:

CDR is a valid mitigation option for aviation
— but policy doesn't treat it as such

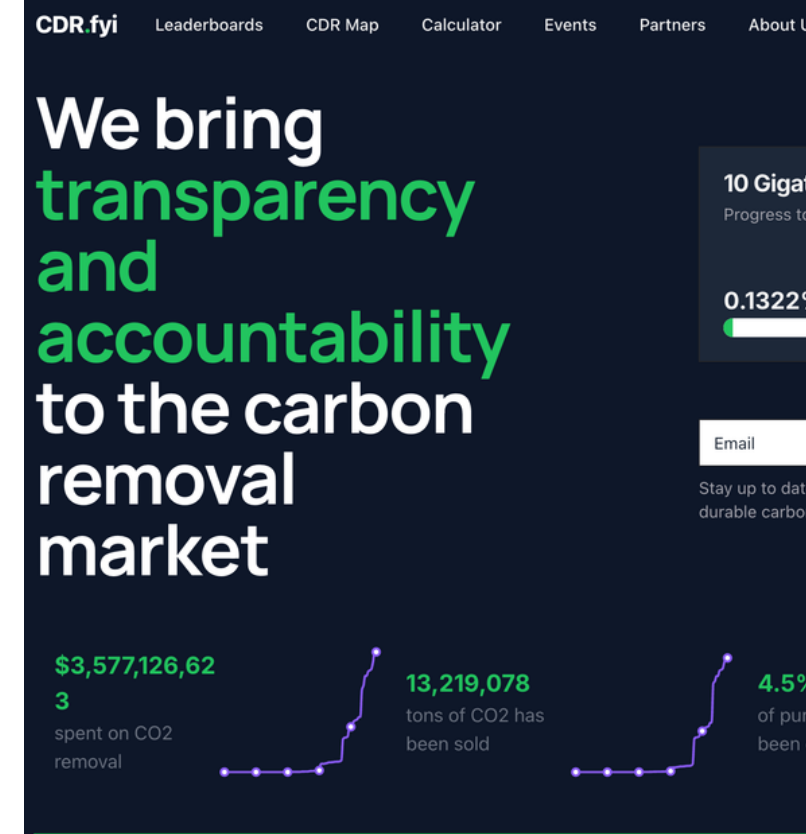
IMPACT AVIATION STOCKTAKE FORUM

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WHO AM I?

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- Head of climate, Milkywire
- Co-founder, CDR.fyi.
- Part of EU Expert Group on CDR.
- Part of Science-based Target initiative (SBTi) Expert Working Group.
- Runs the CDR publication Marginal Carbon.

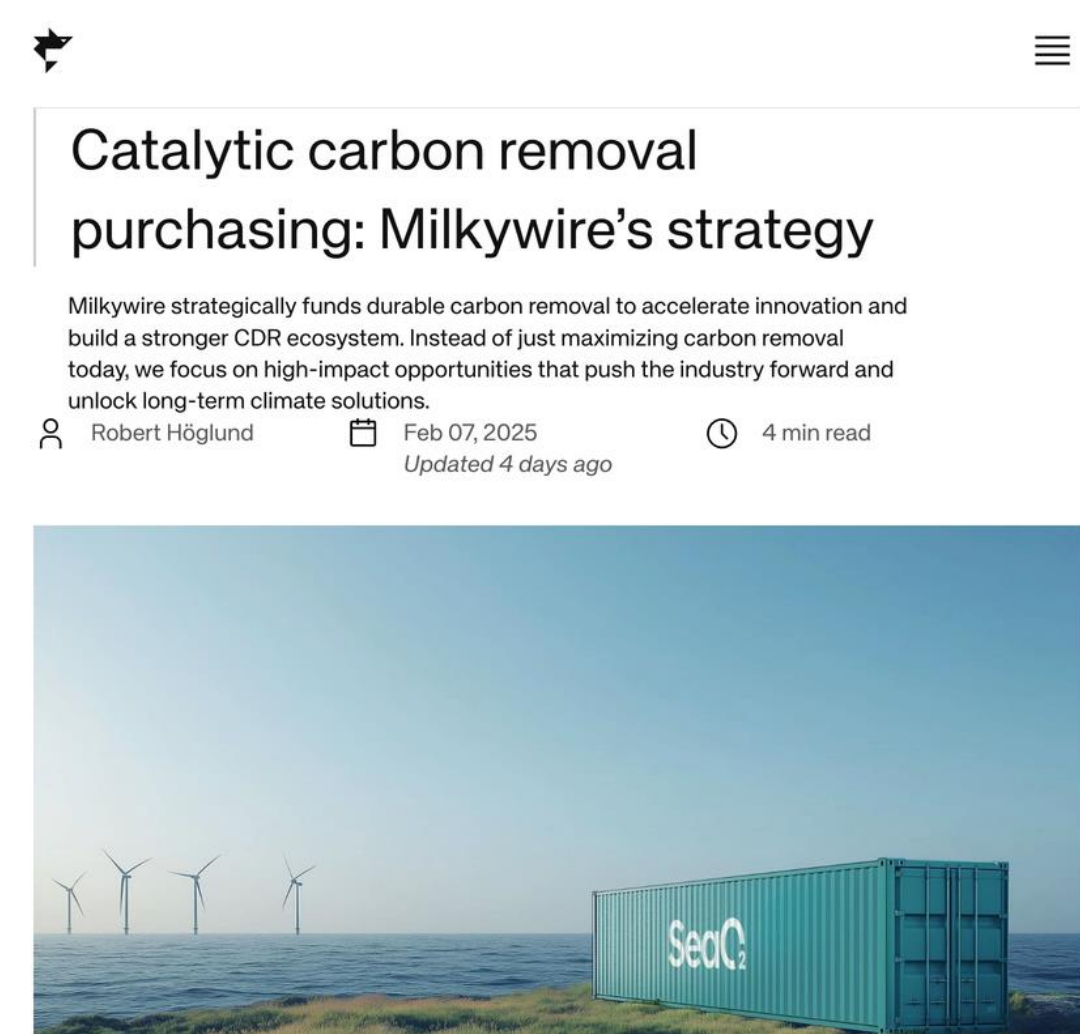


How much carbon will we need to remove?

There is a big difference between the CDR needed to reach net zero, for neutralizing methane, and removals to bring back down...

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nature communications

Article

<https://doi.org/10.1038/s41467-024-54039-x>

Estimating countries' additional carbon accountability for closing the mitigation gap based on past and future emissions

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Carbon Gap

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Our publications

All excess emissions must be removed

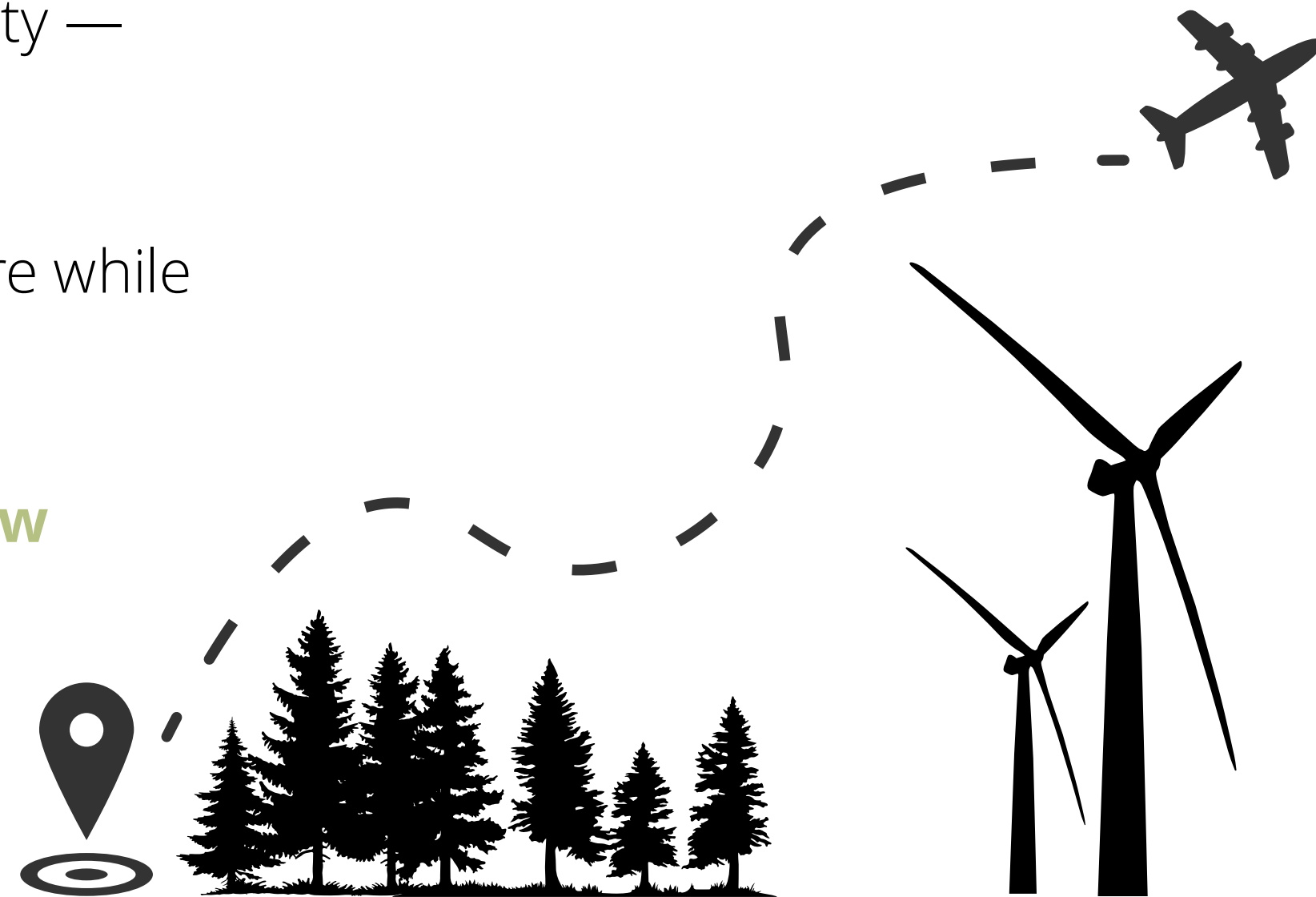
Large historic emitters do not have

THREE PATHS TO NET-ZERO AVIATION

Three mitigation paths for net-zero aviation:

- 1) **Biofuels (SAF):** Sustainable, but supply-constrained.
- 2) **E-fuels (Power-to-Liquid):** Scalable with clean electricity — but very energy intensive and expensive
- 3) **CDR + fossil jet fuel:** Remove CO₂ from the atmosphere while continuing to use fossil fuel.

The real question: why does aviation policy only allow options 1 and 2?



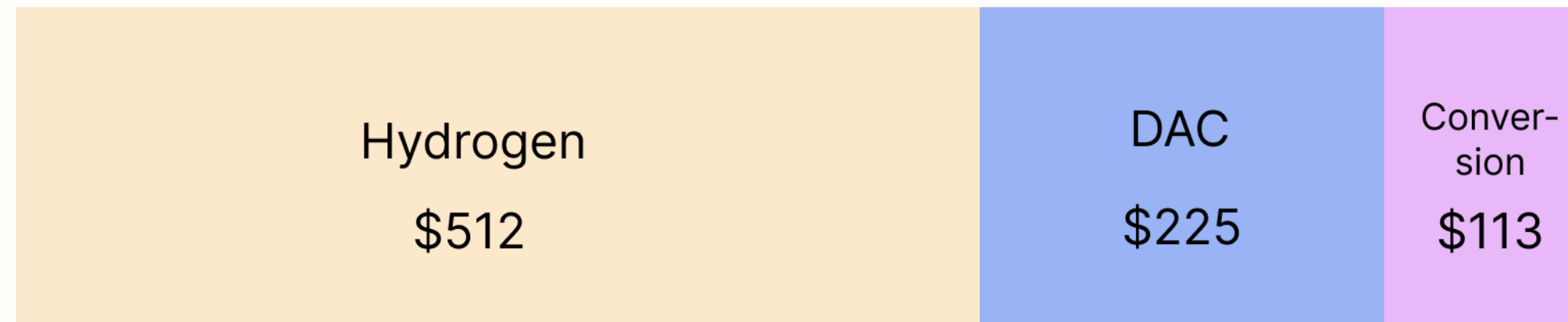
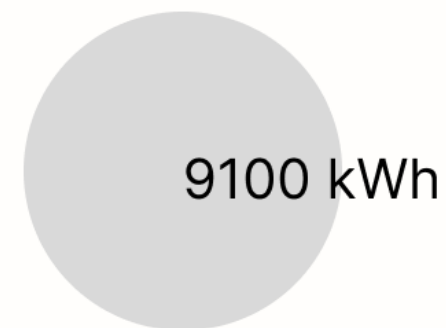
E-FUEL VS CDR+BAU

Cost of a net zero flight in 2050

1 tonne of CO₂ = 396.8 liter / 104.5 gallons of fuel / 13,6 GJ

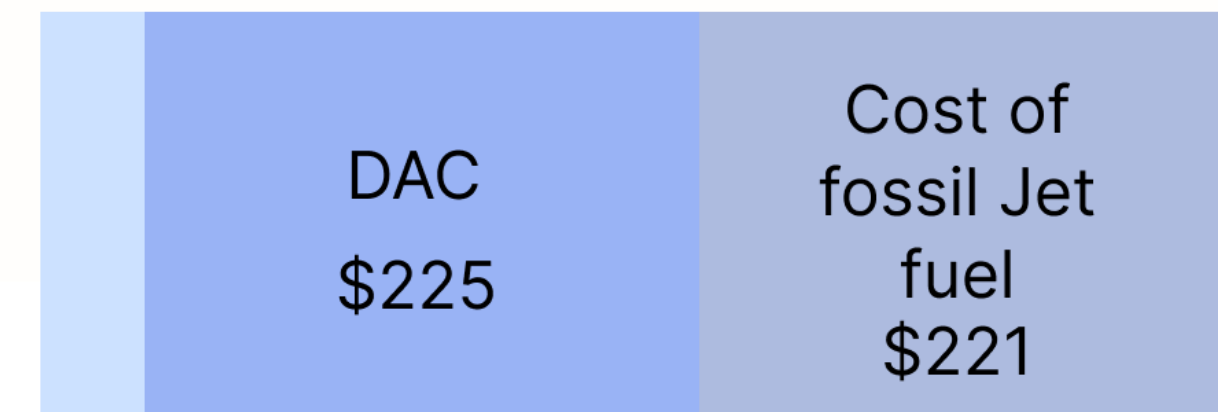
Assumes zero emissions electricity at \$0,05 kWh and \$0,558/liter (\$100/barrel) Jet fuel price

Electricity
requirement



**Cost of electrofuel
\$851**

1500 kWh



**Cost of CDR + BAU
\$476**

↑ \$30 CO₂ storage

WHERE POLICY SHUTS OUT CDR

- **RefuelEU:** Mandates SAF blending to 70% by 2050. It's a fuel-type requirement — not a climate-outcome requirement. CDR cannot be used as compliance.
- **CORSIA:** Allows offsets but prioritizes cheap conventional credits. Durable CDR is effectively priced out of the market.
- **SBTi:** Currently effectively caps permanent CDR at 10% of emissions for net-zero targets. Sector-specific aviation guidelines likely to follow and may entrench this limit.
- **EU ETS:** May allow CDR after 2031, but effect may be marginal as long as the SAF blending mandate dominates.

Decision-makers likely didn't consider durable CDR when designing these policies.

WHY THIS EXCLUSION IS A MISTAKE

Net zero aviation is threatened by high costs and constrained feedstocks. As CDR is often the cheaper option it makes the net zero transition faster and more likely to happen in the first place.

WHAT NEEDS TO CHANGE

- **Airlines and actors in the sector:** Surface carbon removal as a serious mitigation option for aviation decarbonization
- **CORSIA:** Introduce increasing durable CDR requirements, ramping to 100% by 2050. End preferential treatment of cheap conventional offsets.
- **RefuelEU:** Allow CDR purchases as a compliance pathway when affordable SAF volumes are unavailable.
- **SBTi aviation sector guidelines:** Remove the artificial 10% cap on permanent CDR. Let aviation companies use CDR to meet targets.
- **EU ETS:** Include permanent CDR — the Commission proposal is expected in 2026.

Key principle: Technology-neutral frameworks with strict quality guardrails for both SAF and CDR. Let markets decide e-fuel vs CDR+BAU based on cost.

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