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Direct Air Capture

Big Oil's Latest Smokescreen

Key Messages

- Direct air capture (DAC) is an energy- and emissions-intensive technology, unproven at scale, that aims to vacuum carbon dioxide directly from the ambient air. It is one of many purported techno-fixes capturing headlines in the run-up to this year's global climate talks (COP28).
- Much of the captured carbon from DAC is intended for a process called enhanced oil recovery (EOR), which injects CO_2 into a depleted well, forcing hard-to-reach oil reserves to the surface to be burned, thereby adding more carbon to the atmosphere, rather than removing it.
- US oil and chemicals company Oxy is one of the biggest proponents of DAC, claiming the technology is a key to prolonging fossil fuel industry operations for decades into the future.
- Oxy's DAC poster child, Stratos, would add around 350,000 tonnes of greenhouse gas emissions to the atmosphere if it uses all the captured carbon for EOR. Though Oxy markets the technology as a climate solution, annual emissions from this project could equal those of 77,000 cars.
- This year's COP28 president, Sultan Al Jaber, is lending a veneer of legitimacy to DAC and has brought an Oxy executive onto the COP28 leadership team, all while a deal has been announced between his company, the Abu Dhabi National Oil Company (ADNOC), and Oxy to develop DAC projects.
- According to a United States Department of Energy analysis, Oxy's DAC technology under construction in the US will remove only 39 percent of the CO_2 it promises to capture from the atmosphere. The same analysis concludes that no combination of DAC and EOR oil production comes close to actually sequestering more carbon from the atmosphere than is emitted in the whole process.
- The carbon credits Oxy is planning to sell appear to outweigh its plants' real capture capacity, and will be used to justify continued pollution and increased oil production.
- The size of DAC projects to date is insignificant from a global climate perspective, with a total projected capacity to capture only 0.01 percent of today's annual global energy emissions by 2030. Implementing DAC on climate-relevant scales would require such vast amounts of toxic chemicals and water, on top of its energy use, that it would pose massive risks to communities and ecosystems.
- The push for DAC is largely being bankrolled by public funds. Oxy's first DAC plant will receive around USD100 million per year in tax breaks and subsidies. Oxy's giant vacuum appears to be better built to suck up subsidies than carbon.
- If deployed, DAC will do much more harm than good by perpetuating the lifespan of fossil fuel infrastructure and diverting resources away from far more effective and proven climate solutions like renewable energies and energy efficiency.

Introduction

In April 2023, US-based oil company Oxy, formerly Occidental Petroleum, broke ground on Stratos, a USD1.1 billion facility in Ector County, Texas.[1] The company claims the project will have the capacity to suck 500,000 tonnes of CO_2 from the atmosphere each year through a method known as direct air capture (DAC).[2] Stratos is just the beginning of what Oxy CEO, Vicki Hollub, has billed as a grand "carbon management" scheme meant to justify the company's continued oil extraction into the future.[3]

"We believe that our direct capture technology is going to be the technology that helps to preserve our industry over time," Hollub said at an oil conference in March. **"This gives our industry a license to continue to operate for the [next] 60, 70, 80 years."**[4]

Oxy is by far the world's biggest promoter of DAC and carbon management, with plans to build as many as 135 similar plants by 2035.[5] But Oxy's influence is spreading, and the company's promises to produce oil forever seem to have caught the attention of Sultan Al Jaber, the CEO of the United Arab Emirates' (UAE) State-owned oil company, Abu Dhabi National Oil Company (ADNOC), which recently announced a deal with Oxy to explore DAC projects.[6] Beyond his work as an oil executive, Al Jaber is also the president of the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP28).[7] An Oxy executive has also been brought in as a member of the COP28 leadership team.[8]

With climate talks *around the corner,* and with help from this year's COP presidency, Oxy is turbo-boosting DAC, a **dangerous distraction** from *real climate action.*

Sultan Al Jaber, COP28 President, Minister of Industry and Advanced Technology of the United Arab Emirates, and Managing Director and Group CEO of the Abu Dhabi National Oil Company (ADNOC)

Vicki Hollub, Oxy President and CEO

The Problems with DAC

Direct Air Capture and Carbon Capture and Storage

A number of direct air capture (DAC) proponents are pushing subsidies and deployment of DAC forward, though **none of the technology has been proven at scale,** and similar schemes to trap carbon dioxide from polluting industrial facilities have repeatedly failed.

Carbon capture and storage (CCS) is an older, better known technology that shares similarities, and the same enabling technology, with DAC. CCS involves capturing CO_2 directly from the waste stream of a polluting facility. CCS is intended to prevent emissions from reaching the atmosphere in the first place, while DAC is a form of carbon dioxide removal (CDR) intended to pull emissions from the atmosphere after it has been released.[9]

Despite their relative simplicity compared to DAC, carbon capture projects have been dogged by failure for many decades.

A recent review of thirteen of the world's flagship CCS projects by the Institute for Energy Economics and Financial Analysis (IEEFA) found a trail of failed and underperforming projects, cost overruns, and capture rate targets repeatedly missed.[10] Even when projects succeed in capturing some CO_2, many flagship carbon capture projects encounter problems with injecting and containing the carbon underground, something that DAC projects would also need to accomplish.[11] Polluting industries, desperate to save themselves, have not succeeded in getting a less complex, less expensive carbon capture technology off the ground. There is no reason to believe that DAC technology will fare any better.

DAC refers to a range of new technologies, **largely untested at scale,** which purport to vacuum CO_2 directly from the ambient air. Most of these new schemes involve using massive fans to blow air over a mix of caustic chemicals that trap the carbon molecules. These machines then use an enormous amount of energy and heat to separate the CO_2, which needs to be transported and stored.

At first glance, a way to suck out pollution from the atmosphere might seem like a great idea. But DAC is an incredibly inefficient and costly way to address climate change, and the technology gives cover to fossil fuel companies that are simply trying to perpetuate their business.

DAC has many problems, but there are four very big ones:

1. DAC may delay the phase out of fossil fuels.

The burning of fossil fuels accounted for 91 percent of global CO_2 emissions in 2022.[12] The simplest and most effective way to reduce the amount of CO_2 released into the atmosphere is to stop burning fossil fuels. But instead of replacing fossil fuels with renewables and gradually decommissioning fossil fuel infrastructure, oil companies want to continue emitting CO_2 and then suck it out of the air with DAC. Other than being incredibly inefficient (discussed further below), **DAC systems give oil companies an excuse not to phase out fossil fuels and give cover for other, even more polluting projects.**

Technofixes like DAC also lead to a "moral hazard." They make disastrous scenarios more likely by tempting decision makers to delay cutting emissions based on the belief they will be shielded from the consequences down the line.[13] The potential impact of this "mitigation deterrence" is measurable, with one academic study estimating that reliance on carbon removal schemes could lead to additional temperature rise of up to 1.4°C.[14] The Intergovernmental Panel on Climate Change (IPCC) backs this up with findings that **technofixes like DAC may delay urgent and feasible emission cuts, prolong the phaseout of fossil fuels, and increase the likelihood of temperature overshoot.**[15]

Oxy is proposing to use the majority of the CO_2 captured in its first DAC project, Stratos, for oil extraction.[16] Through a process known as enhanced oil recovery (EOR), CO_2 is injected into a depleted well, forcing hard-to-reach reserves to the surface. Oxy has begun to market the oil it plans to extract through Stratos as "net-zero oil," relying on carbon stored in its EOR wells to offset emissions from burning the oil.[17]

If the claimed 500,000-tonne capture capacity of Stratos were used each year for EOR, **it would actually add around 350,000 tonnes of greenhouse gas emissions to the atmosphere once its own emissions and that of the produced oil are included,** according to an analysis by the Department of Energy's National Energy Technology Laboratory (DOE NETL).[18] **This is equivalent to the typical emissions of 77,000 cars, coming from a technology that is being marketed as a 'climate solution.'**[19] Considering the 135 DAC plants that Oxy alone has projected building by 2035, each twice as big as Stratos, this new source of emissions could be massive.[20] CIEL asked Oxy to comment on these findings and the other matters raised in this publication but received no response.

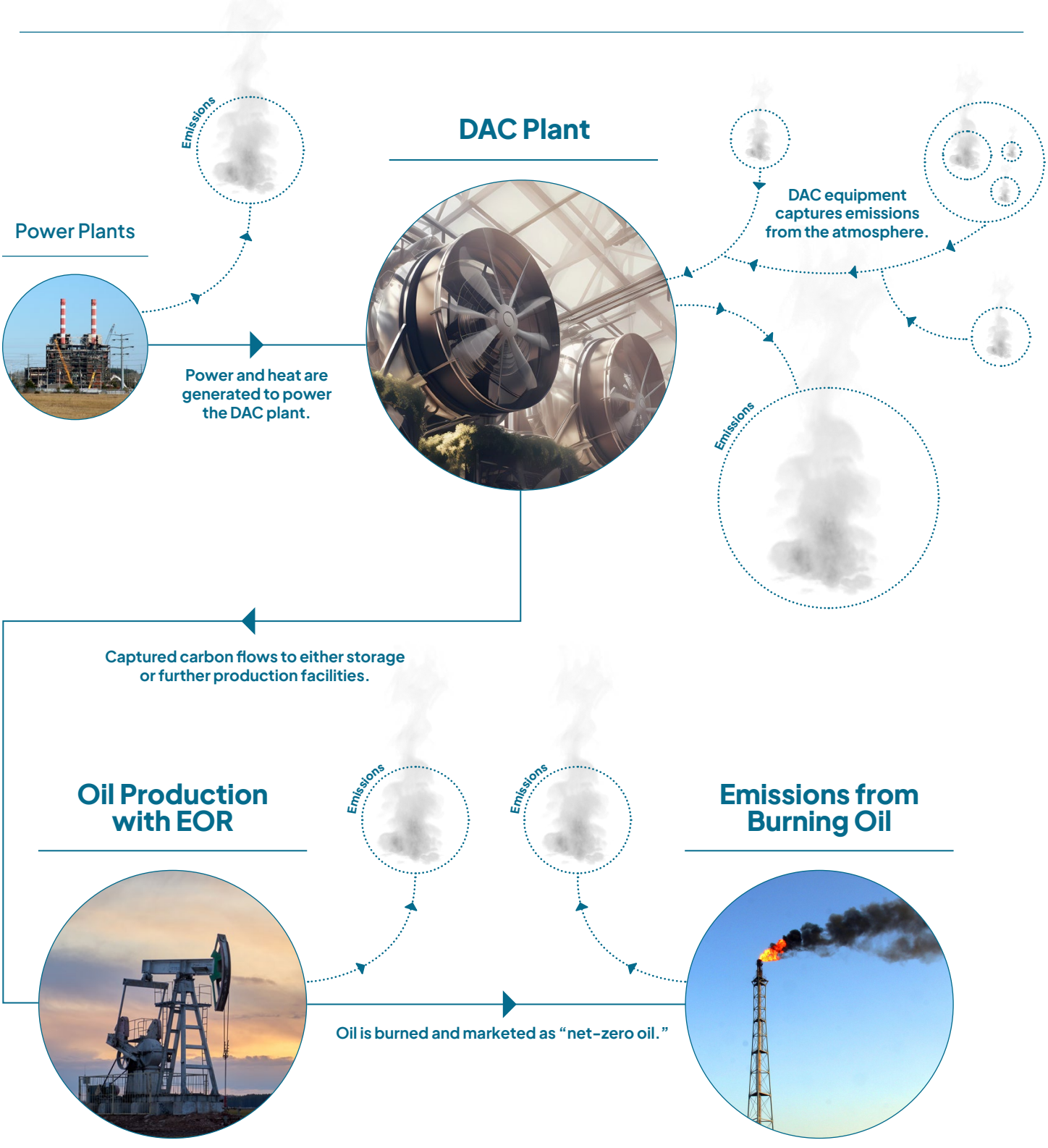
2. DAC uses enormous amounts of energy and other resources, all while generating new emissions.

No combination of DAC and EOR oil production comes close to sequestering more carbon from the atmosphere than it emits.[21] Even if DAC projects are able to sequester CO_2 underground, they will produce new emissions through the use of energy, heat, chemical inputs, and the buildout of new infrastructure required to pull it off. According to the DOE NETL's analysis, Oxy's Stratos plant, the first on its scale, will emit 610 kilograms (kg) of CO_2 emissions for every 1,000 kg of CO_2 it traps.[22] Once lifecycle emissions are taken into account, the potential impact is just 39 percent of the project's publicized 500,000-tonne capture capacity, or 195,000 tonnes.

Scientists and academics have raised concerns about additional resources used for DAC, including water and toxic chemicals.[23] The leading DAC technology requires between five and thirteen tonnes of water per tonne of carbon captured,[24] meaning a 500,000-tonne plant could use more water than 57,000 Americans use in a year.[25] Oxy's DAC technology also requires the use of caustic chemicals like potassium hydroxide, which is toxic, dangerous to the environment, and requires a significant amount of energy to manufacture.[26]

Direct Air Capture Process and Emissions

Greenhouse gas emissions are created at the power generation, oil production, and oil use stages when direct air capture (DAC) is combined with enhanced oil recovery (EOR).



3. Emissions reductions through DAC come at a huge expense and opportunity cost.

Oxy plans to spend USD1.1 billion building Stratos.[27] An amount like that could go much further to tackle climate change if used on proven methods that don't emit CO_2 and keep fossil fuels in the ground. For example, building fifty-four wind turbines to replace fossil fuels in the US electricity grid would cost **just USD146 million,[28] a small fraction of the cost of the Stratos DAC plant. Those fifty-four turbines would prevent 195,000 tonnes of CO_2 pollution[29] — the same amount Oxy's plant will remove according to the DOE analysis — yet the Stratos plant will cost seven times more money upfront. Stratos could only remove that quantity of CO_2 from the atmosphere if it lives up to its theoretical efficiency and does not use captured carbon for EOR.**

Despite its economic inefficiency, much of the money used for DAC will ultimately come from the public purse. Oxy stands to rake in nearly USD100 million in public subsidies each year from Stratos, meaning

Oxy's giant vacuum is **better built** to suck up *subsidies* than *carbon.*

4. The DAC buildout is dwarfed by the scale of needed emission reductions, but a larger buildout would create new problems.

DAC's potential capture capacity is a drop in the ocean compared to existing emissions. Global emissions from energy combustion and industrial processes alone hit an all-time high of 36.8 gigatonnes (Gt) in 2022 according to the International Energy Agency (IEA).[30] If all the world's planned DAC facilities are built and operate at full capacity, they will only have a 4.7 megatonnes (Mt) capture capacity in 2030, equivalent to just 0.01 percent of today's global energy emissions.[31] For comparison, emissions from the Formosa petrochemical plant in Point Comfort, Texas, alone were estimated to be 4.8 Mt in 2022.[32] That means that

all the planned DAC plants worldwide **wouldn't even capture** the amount of emissions coming from a *single* petrochemical plant in Texas.

Even if DAC were to be enormously scaled up to capture gigatonnes of CO_2, the inputs required for the process would dominate the world's energy and chemical manufacturing processes. One study found that if the world were to build 30,000 DAC facilities in order to capture 30 Gt of CO_2 per year by 2100, it would need around 50 exajoules (EJ) of electricity per year, which is more than half of what the entire world produces today. A buildout of this scale would also require 250 EJ of heat per year, more than half of today's energy consumption. Building these machines might also require up to 100 times the amount of sodium hydroxide currently produced worldwide. The production of sodium or potassium hydroxide would also produce vast amounts of chlorine, a poisonous gas, as a byproduct.[33]

Powerful Ties: Oxy, DAC, and the UAE

While Oxy's vision to avoid fossil fuel phaseout in favor of carbon management has little practical merit, the company is using its considerable influence to put DAC on the global stage. For years, Oxy has thrown its lobbying weight and connections around at home, where it is the second-largest US political donor from the oil and gas industry.[34] Now, the company appears to be flexing its ties to the UAE, calling DAC to the attention of the COP28 presidency.

The UAE, ADNOC, and Sultan Al Jaber all have close ties to Oxy, which has operated in the region for decades. Al Jaber is currently a minister in the UAE government, CEO of ADNOC, and the president of COP28.[35] Since 2002, Oxy has owned a stake in Dolphin Energy, which supplies natural gas from Qatar to customers in the UAE and elsewhere.[36] The government of Abu Dhabi is the majority owner of Dolphin as well as wholly owning ADNOC.[37] Today, Oxy also runs a joint venture with ADNOC in the company's Shah gas field.[38]

These close business ties have since translated to global climate talks. An Oxy executive, Saamir Elshihabi currently works as the Lead in Energy Transition for the COP leadership team, while also working as an executive vice president for Oxy, and serving as a director for an Oxy subsidiary.[39]

This is not the first time that Oxy has had privileged access to international climate talks. At COP27, Vicki Hollub was included in the UAE's official delegation, along with eleven of her colleagues. This access gave the Oxy executives privileged access to the negotiations, and more lobbying presence than any other oil company at the talks.[40] Hollub has expressed excitement over the UAE's hosting of COP this year, saying, "[t]he one negative of COP26 is that the oil and gas industry didn't really have a seat at the table, and that's why I'm so excited that COP28 will be here in Abu Dhabi. I think that that will help to give us a voice because we are going to need to be part of the solution."[41]

Oxy's interest in DAC and other carbon management technologies has appeared to rub off on its partners in the UAE. In the run-up to COP28, Al Jaber has argued that the focus of the climate talks should be to reduce emissions from fossil fuels rather than phase them out entirely. He has pointed to DAC and similar CCS technologies as solutions.[42] In October 2023, ADNOC announced a deal with Oxy to explore investing in Oxy's US DAC plants as well as building DAC plants in the UAE.[43] The deal will run alongside a strategic collaboration on carbon capture, utilization, and sequestration (CCUS) projects in the US and the UAE. Oxy has also secured the rights to drill a number of onshore gas blocks in the UAE and is reportedly "eyeing" sites in its oil and gas fields in Abu Dhabi for DAC facilities.[44]

Despite questions over the effectiveness of DAC, the Oxy-ADNOC deal has garnered US government support and the direct involvement of Al Jaber. Oxy advertised that the agreement was enabled by the UAE-US Partnership for Accelerating Clean Energy (PACE), which aims to mobilize USD100 billion for projects including CCS and DAC by 2035. The body formed to govern PACE is co-chaired by Al Jaber and Amos Hochstein, White House senior advisor to the president for energy and investment.[45] CIEL asked Al Jaber about these issues, both through the UNFCCC press office and ADNOC's, but received no response.

David Keith: A Profiting Pioneer of DAC

Oxy has recently doubled down on its DAC strategy, agreeing to a USD1.1 billion purchase of the remaining equity in Carbon Engineering, the firm that developed the technology used in Oxy's DAC plant.[46]

Carbon Engineering's founder, David Keith, has been a prominent voice in the public debate around geoengineering (deliberate large-scale interventions in the Earth's natural systems to impact the climate), including DAC.[47] Writing in *The Economist* in October, he admitted oil companies will use DAC to defend the status quo, but he urged that oil companies' buyout of DAC technology should be welcomed, as DAC's success will outcompete their fossil fuel interests. His argument fails to reckon with the significant uncertainties surrounding large-scale carbon removal, and ignores the fact that relying on such future technologies can lead to perilous delays to immediate actions needed to reduce emissions.[48]

Keith did disclose his continuing board role at Carbon Engineering in his *Economist* piece — though he did not disclose his ownership stake at the company — which, based on company records, would have been worth around USD40 million when Oxy agreed to buy it earlier this year.[49] Given Keith's financial stake in DAC, he has an obvious interest in how the public sees the technology and is not an unbiased observer. In response to questions from CIEL, Keith acknowledged his ownership interest in Carbon Engineering and said that both he and *The Economist* believed describing him as founder of the company conveyed this point to readers. Keith agreed that his ownership in the company "should raise doubts if/when I am singing its praises," though he felt he was critical of DAC and believed it to be "over-hyped."

David Keith

DAC's Global Future

Oxy has announced a "Carbon Management Vision," which outlines plans to build a vast DAC network of up to 135 plants by 2035. While Oxy is by far the largest proponent of DAC, other major oil companies have also started exploring the possibility of using the technology.

Chevron, for example, was one of the original investors in Carbon Engineering, the firm that developed the technology for Oxy's DAC plants.[50] Exxon is also pursuing DAC alongside investments in CCS, with a company executive recently stating that they see a clear place for DAC in a net-zero future. In 2023, Exxon invested USD4.9 billion in the purchase of Denbury, an oil and gas company with a 1,300-mile CO_2 pipeline network essential for transporting CO_2 from either CCS or DAC.[51]

Shell also plans to get in on DAC, with a demonstration unit set to begin operation in Houston, Texas, in 2025.[52] The company prominently features DAC in its"Sky Scenario," the company's energy transition prediction, with projections that the technology will be flourishing by 2100. Shell's Chief Climate Change Adviser David Hone, has written: "DAC will play a critical role" because "the emissions problem we have is only partly solved by renewable energy, with the full solution coming when we can combine new energy sources with the management of CO_2 from legacy energy sources."[53] Hone is best known for boasting about inserting measures into the Paris Agreement that allow fossil fuel companies to purchase credits for emissions reductions elsewhere instead of reducing their own emissions.[54]

There are also a handful of non-fossil fuel startups that are involved in DAC, including Climeworks and Global Thermostat. Climeworks currently runs the world's largest DAC plant, Orca, out of Iceland, which only captures around 4,000 tonnes of CO_2 a year. Climeworks is also building Mammoth, a 36,000-tonne capacity DAC plant, also in Iceland.[55] Global Thermostat does not yet have any plants planned, but it has sought US government backing for its DAC technology that garnered investments by the Japanese Utility firm Tokyo Gas.[56]

The grand ambitions and limited benefits of DAC and other carbon capture technologies follow a long-running pattern: Fossil fuel interests claim that carbon capture attached to power plants or industrial facilities mitigates enough emissions to justify the continued exploitation of fossil fuels. CCS projects rely on many of the same technical principles as DAC. Both rely on integration with effective carbon transportation and storage infrastructure, but, despite substantial public funding over decades, CCS projects have repeatedly failed to live up to their promises. CCS projects are widely seen as greenwashing. More than 70 percent of existing carbon capture facilities are used for EOR.[57]

In 2022, Oxy quietly sold off its Century gas processing plant, the world's largest CCS project, for a fraction of what it cost to build after it failed to reach its projected CO_2 capture rate.[58]

DAC and CCS projects compound the risks and environmental injustices already faced by communities burdened by polluting facilities as the heat, power, and chemicals required to drive the process cause additional emissions.[59] This is in part why the White House Environmental Justice Advisory Council flagged CCS and DAC as examples of projects that will not benefit communities.[60]

The IEA acknowledged the failure of CCS technologies to live up to their promises in its September 2023 report on the pathway to keep global heating to 1.5°C, saying that the history of CCS "has largely been one of unmet expectations." Given the similarities in CCS and DAC technologies, these concerns carry over to DAC.[61]

The IPCC has also repeatedly cast doubt on the widespread use of CCS. In its Sixth Assessment Working Group III report examining climate change mitigation progress, published in 2022, the IPCC notes that "CCS always adds cost" and illustrates that CCS is the highest cost approach with the least potential in the near term, when emissions cuts are most crucial.[62]

In its Special Report on Carbon Dioxide Capture and Storage, the IPCC raised concerns about the dangers of storing CO_2, a challenge for both DAC and CCS: "CO_2 storage is not necessarily permanent. Physical leakage from storage reservoirs is possible via (1) gradual and long-term release or (2) sudden release of CO_2 caused by disruption of the reservoir."[63] Geologists have raised concerns over the risks of carbon storage wells failing to keep the gas contained, or contaminating aquifers, as CO_2 could leach toxic metals out of the surrounding rocks into drinking water.[64] Communities already face a multitude of risks from existing carbon pipelines and storage wells. A widespread rollout of DAC and CCS technology will multiply these risks many times over.[65]

The IPCC, across a range of its other reports, has also warned of the massive risks that stem from any reliance on carbon dioxide removal (CDR) technologies like DAC. The IPCC's Special Report on the impacts of warming above 1.5°C similarly warned that "CDR deployed at scale is unproven, and reliance on such technology is a major risk in the ability to limit warming to 1.5°C." The Sixth Assessment Report also warned of "mitigation deterrence," the risk that insufficient action will be taken to mitigate current emissions because of a reliance on potential future carbon removals, and raised concerns that the prospect of carbon removals could "obstruct near-term emissions reduction efforts." [66]

The expert conclusions are clear:

> DAC and other carbon removal technologies are **not** a *climate solution*. DAC is in fact a *distraction* that could pose **considerable risks to communities** and our ability to limit warming to 1.5°C.

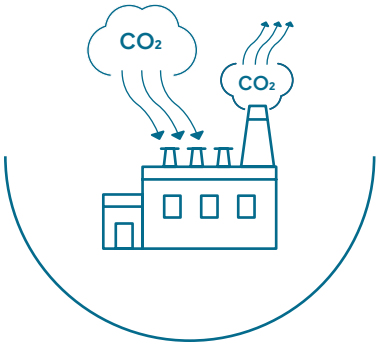
DAC's Public Money for Private Gain

Oil companies' DAC plans are being propped up by the public purse, raising further concerns about a global rollout of DAC technology when funds could instead be used to support effective climate solutions. In fact, the proposed DAC and carbon management business model appears to be focused on capturing carbon in order to capture public subsidies.

The US government is thus far the largest subsidizer of DAC, and announced in August 2023 a USD1.2 billion federal grant pot for two DAC projects: Oxy's South Texas DAC hub and a planned plant dubbed Project Cypress in Calcasieu Parish, Louisiana.[67] The British and Canadian governments have also announced substantial funding and tax breaks for CCS and DAC projects.[68]

Jennifer Granholm, Secretary of the US Department of Energy (DOE)

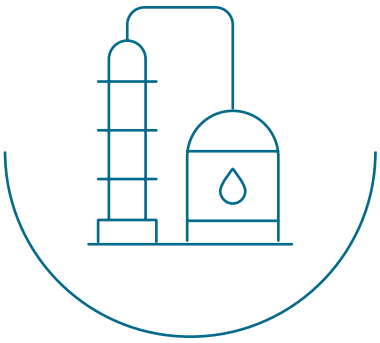
Sucking up Carbon or Subsidies?



Oxy's DAC plant, Stratos, would release

610 kg

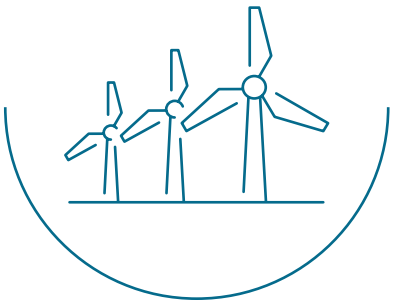
of CO_2 for *every* 1000 kg captured, meaning the *claimed* 500,000-tonne annual capacity of the plant **would only remove 195,000 tonnes** on balance.



If Stratos's full *claimed capacity* of carbon was used for EOR, it would emit

350,000 tonnes

of **greenhouse gases annually**, equal to 77,000 cars.



Adding fifty-four wind turbines to the US electricity grid would cost $146 million and could **avoid**

195,000 tonnes

in CO_2 emissions per year from fossil fuels. This is equal to the **entire modeled carbon removal capacity** of Stratos, but at 1/7th of the upfront cost.

The US offers other generous subsidies for DAC, as illustrated by the Oxy Stratos project. Oxy claims that it expects to generate between USD400 and USD630 in revenue per tonne of CO_2 captured this decade, including federal tax credits. The US federal tax credit available for DAC facilities was significantly increased as part of the Inflation Reduction Act. **Oxy stands to receive USD130 per tonne of carbon captured through DAC, even if it then uses the carbon to produce more oil.**[70] The Stratos project could earn USD65 million per year under this credit while using its 500,000-tonne touted capture capacity for EOR. The company also plans to sequester or pump some of the CO_2 underground into carbon storage wells, for which it could receive massive federal tax credits amounting to USD180 per tonne captured.[71]

Oxy has sought to access the California Low Carbon Fuel Standard (LCFS) offsets market, which would allow Californian refiners to avoid a transition to lower-carbon fuels by instead buying credits from Oxy — even if Oxy then uses that captured CO_2 for oil production. Credits have recently traded for around USD75 per tonne of CO_2.[72] The subsidies Oxy is seeking can be stacked, greatly increasing their value.[73]

Aside from these federal and state subsidies, tax abatement filings show that Oxy has secured permission for the Stratos project from the local school district, which, according to an *Inside Climate News* analysis, granted tax breaks worth up to USD50 million over a decade. Oxy has also secured a local economic development grant worth USD2.4 million, and a ten-year property tax abatement, both justified by local politicians on the grounds of job creation.[74] Even more tax incentives are available in Texas, where the use of captured CO_2 for EOR reduces Texas's state oil production tax (known as severance tax) rate from 4.6 percent to 1.15 percent.[75]

If Stratos successfully captures its promised capacity of CO_2 per year and it is all put to use for oil production, Oxy could claim subsidies from multiple sources, which would make up a significant proportion of its income. The company could make USD65 million in 45Q tax credits per year, USD37.5 million from the California LCFS market, and benefit from USD5 million a year

through its property tax abatement. Effectively, this adds up to nearly USD100 million per year in subsidies. Put another way,

> the subsidies available to Oxy, for its Stratos project *alone*, amount to **USD215 per tonne of CO_2** — equivalent to *nearly half* Oxy's expected income, even as it continues to emit CO_2 by producing oil.

Oxy estimated its initial costs to remove a tonne of CO_2 would be between USD300 and USD425. The company claims that as efficiencies kick in — through the addition of multiple DAC plants to its portfolio — it will be able to roughly halve that cost by the end of the decade, to somewhere between USD200 and USD250 a tonne.[76] **Government subsidies will fund a massive proportion of the DAC balance sheet, putting money in the pockets of oil companies that continue to pollute** as they divert funds from more effective carbon reduction strategies.

On top of a pile of public subsidies, Oxy also plans to generate a large portion of its income through the sale of carbon credits. In September 2023, Amazon announced it would buy 250,000 tonnes worth of carbon credits from Oxy's Stratos.[77] Airbus, SK, Shopify, ThermoFisher, and United Airlines have also agreed to pay for offsets from Oxy's DAC projects.[78] **Corporations can use these credits to greenwash their image and to justify their continued pollution, slowing or hindering their transition to a truly fossil free economy.**

Furthermore, **it appears that Oxy plans to sell credits for nearly every tonne of carbon captured by its projects, without accounting for the emissions generated in the process.** Oxy has told investors that each 1-Mt plant it plans to build should be able to sell approximately 900,000 tonnes worth of carbon credits every year.[79] According to the DOE NETL analysis, however, each 1-Mt plant would only remove emissions of 390,000 tonnes once its own emissions are taken into account, and that scenario even assumes the process works perfectly, with all the captured carbon safely and permanently sequestered.[80]

Oxy has indicated it will implement third-party verification for its credits.[81] However, the methodology that Oxy has been developing is under review by Verra, a company that has been mired in scandal.[82] An investigation in January 2023 revealed that 90 percent of Verra's rainforest carbon offsets were worthless and could be making global heating worse.[83]

Even if Oxy were to use a different accrediting agency, the concept of offsets relies on a fundamentally flawed misconception that a credit generated in one place is a good solution to offsetting emissions elsewhere. Offsets are born out of polluters' desire to avoid taking the necessary, albeit difficult, action of phasing out fossil fuels.

The sale of credits is key to the business model of other DAC projects as well.[84] Iceland-based Climeworks, which is building a DAC plant with a claimed capture capacity of 36,000 tonnes,[85] has sold credits to well known companies like JP Morgan Chase, Microsoft, and H&M.[86]

All of this money, whether from credits or subsidies, would be much better spent on proven climate solutions like building out renewable energy or improving energy efficiency. **Rather than helping ease climate change, money spent on DAC simply enables continued pollution, putting communities and the climate at risk.**

Conclusion

Subsidizing DAC enables oil companies to profit off plans to suck CO_2 out of the air after they have already profited off releasing it.

Oil companies like Oxy see DAC as a means to justify continued pumping of fossil fuels for many decades to come, while in fact the technology captures far fewer emissions than oil company press releases claim.

Sultan Al Jaber and his COP28 presidency give DAC — and one of its chief proponents, Oxy — a global platform, and risk lending the technology a veneer of undeserved legitimacy. Big Polluters must not be allowed to unduly influence climate policymaking. To that regard, the UNFCCC must urgently establish an Accountability Framework including a conflict-of-interest policy.

Stratos, Oxy's DAC project in Texas, makes clear why DAC can never be a climate solution. Even if Oxy's DAC technology worked as proposed, taxpayers will effectively pay millions to perpetuate oil production, exacerbate pollution and other harms caused by fossil fuels, and create an entirely new carbon management business model that confuses and delays what we know is necessary: phasing out fossil fuels.

Governments need to accelerate the transition away from a fossil fuel economy, not prop up technofixes that prolong our dependency on fossil fuels. Public money should be used to support safe, proven, and readily available solutions: phasing out fossil fuels, building out renewable energies at scale, improving energy efficiency, reducing energy demand, changing our consumption, and protecting and restoring ecosystems.

Endnotes

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This issue brief was authored by Barnaby Pace and Lindsay Fendt, with support from Lili Fuhr and Nikki Reisch. It was edited by Lindsey Jurca Durland and Lani Furbank.

Please send comments or questions to info@ciel.org to be sure of a reply.

Design & Layout: Tyler Unger

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