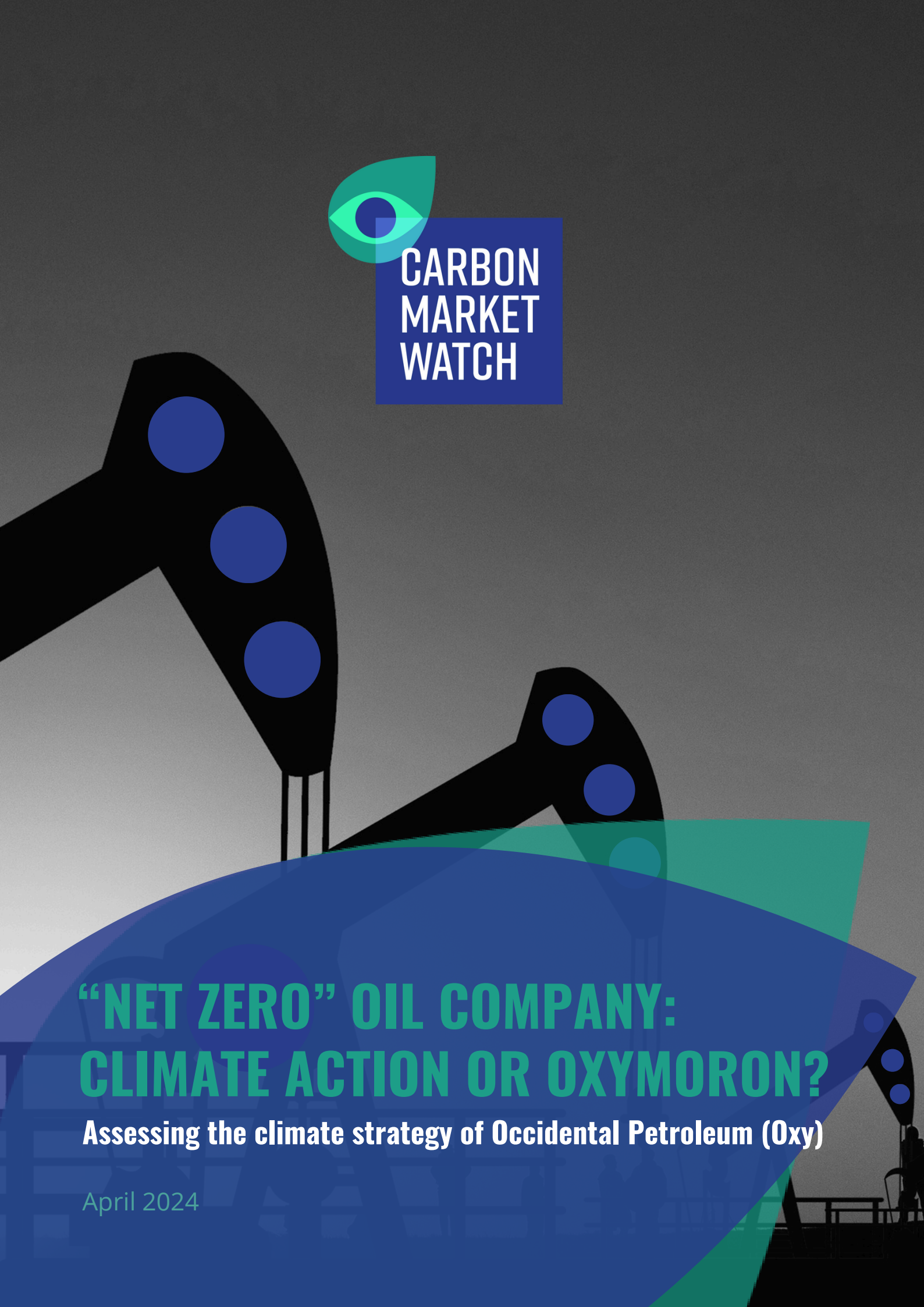

CARBON MARKET WATCH

"NET ZERO" OIL COMPANY: CLIMATE ACTION OR OXYMORON?

Assessing the climate strategy of Occidental Petroleum (Oxy)

April 2024

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Disclaimer

To help assess the transparency of Occidental Petroleum's net zero strategy, this report draws on publicly available information and sources. CMW staff contacted Occidental Petroleum and its subsidiary 1point5 multiple times using multiple avenues during the drafting of this report to ask for more information and clarity on inconsistencies discovered. Neither Occidental Petroleum nor any of its subsidiaries responded to requests for information or comment.

Executive summary

Occidental Petroleum (Oxy) has positioned itself as a global leader in direct air capture, carbon capture and utilisation, and enhanced oil recovery. In ambiguous messaging, the oil and gas company depicts these processes as both an effective tool for tackling the climate crisis and as a mechanism for extending business as usual fossil fuel production and consumption for decades to come.

Net zero or not zero?

Oxy set out a climate strategy and related targets in 2020. While the setting of targets is a step in the right direction, the strategy itself is vague and not aligned with the recommendations of the Intergovernmental Panel on Climate Change (IPCC) and the Paris Agreement goal of limiting global warming to 1.5°C. The company's guiding climate strategy also lacks clarity on concrete steps to transition away from fossil fuels and their associated emissions.

The targets themselves also fall short of what is required to tackle the climate emergency, with Oxy having set just one net-zero greenhouse gas emissions target to achieve net-zero by 2040 for only its direct and indirect energy-related (scope 1 and 2) emissions, which constitute a mere tenth of its carbon footprint.

Moreover, Oxy has only set aspirational goals for its indirect supply chain (scope 3) emissions, which account for approximately 90% of the greenhouse gases the company spews into the atmosphere. This goal is qualified by the authors of this report as "aspirational" given the ambiguity in its formulation: there is no target date, only an "ambition" to achieve net zero across scopes 1, 2 and 3 before 2050.

Oil on the fire

Oxy's current pathway casts doubt on its sincerity to reach all these targets. Oxy is not reducing its emissions nor is it intent on winding down fossil fuel operations - on the contrary, it is investing heavily in expanding oil and gas operations, overrelies on unproven technologies to camouflage its fossil fuel emissions and those of its customers, and is intent on selling so-called "net-zero oil" which, as we show, is a contradiction in terms.

Due to its efforts to influence public policy on emissions reporting and taxpayer subsidies for experimental removals technologies, among others, Oxy's lobbying efforts are also misaligned with the 1.5°C target of the Paris Agreement.

Oxy has expressed its intention to produce up to 1.3 million barrels of oil equivalent per day in 2024, representing as much as a 10% increase in oil and gas production compared to

2022. Meanwhile, scientific advice on climate change presented by the IPCC and the International Energy Agency (IEA) demand a reduction in global oil and gas production.

The IEA Net-Zero Pathway is clear: phasing out fossil fuels to reduce emissions is the most technically viable and cost-effective way to achieve the 1.5°C goal. This involves setting an explicit end date for oil and gas extraction, accelerating decarbonisation, reducing production by more than 80% by 2050 and aligning its investments to 1.5°C pathways. Oxy's climate strategy has failed on all these counts.

Licence to pollute

Oxy's public messaging relies heavily on Direct Air Capture (DAC) to provide a licence to pollute. Through its first direct air capture plant under construction, STRATOS, Oxy claims it will capture 500,000 Mt of carbon dioxide (CO_2) per year from the atmosphere. Though what happens afterwards with those greenhouse gases is unclear: some may end up back in the atmosphere, or even lead to increased oil and gas production through enhanced oil recovery (EOR) - a process whereby CO_2 is injected into oil and gas wells to pump more fossil fuels out of the ground.

Oxy plans to partially use the captured CO_2 for synthetic electrofuels (e-fuels), specifically "sustainable aviation fuels", and as a licence to continue fossil fuel production by labelling some of its crude oil as "net zero".

Oxy's messaging on "net-zero oil" is deeply flawed. Oxy's intent to combine crude oil with "environmental attributes generated through the removal and sequestration of atmospheric CO_2 through [Enhanced Oil Recovery - EOR]" is meaningless. The crude oil will still pollute the atmosphere and harm public health. EOR based on direct air capture is not a carbon removal; it does not balance out the emissions related to the burning of any additionally produced fossil fuels.

In addition, Oxy indicates that it intends to use direct air capture to offset its emissions. However, even if Oxy were able to realise its intention to construct 135 DAC plants with a similar capacity to its flagship STRATOS facility and to use their entire expected net capacity to offset its own emissions, the company would only be able offset at most 11% of its total GHG emissions in 2022.

Moreover, Oxy has also pre-sold a large amount of DAC credits to numerous multinational companies. Such an endeavour presents significant risks of double counting as companies purchasing Oxy's DAC credits may use these credits for compensatory claims (or may be counted towards another country's climate targets), despite Oxy already using its DAC plants to offset its own emissions. The volume of credits that Oxy will place on the market seem to far outweigh the net carbon removals STRATOS is likely to achieve.

This underscores the risky business of double counting and offsetting, and undermines mitigation efforts. This exposes Oxy, its investors and customers to the risk of incurring massive reputational damage and to legal action for greenwashing. It is important from both a climate and business perspective that Oxy should not use DAC to offset ongoing fossil fuel emissions (their own and/or others'), or even worse, to offset increased emissions from DAC-to-EOR processes.

Oxy has historical and current responsibility to abate its emissions, but is headed in the opposite direction. If Oxy is serious about net zero, it will take measures to stop profiting from climate destruction. This includes setting clear targets and roadmaps for reductions across all scopes of emissions, abandoning offsetting and winding down its oil drilling, as well as carrying out real removals, that is, directly capturing CO_2 from the atmosphere and storing it underground without increasing fossil fuel production.

Oxy's climate strategy cannot be credible as long as it does not align its business and investments with 1.5°C-compatible pathways for the energy sector and continues to use DAC as a side venture to prolong the life of fossil fuels.

Table 1: Applying standards for fossil fuel companies to assess Oxy's net-zero strategy reveals that the company fails on every count.

Pillar	Standards for oil and gas companies	✅/❌
Setting targets	Set specific and adequate emission reduction targets independent of offsetting.	❌
	Align long-term (beyond 2030) emissions reductions targets with 1.5°C-compatible trajectories in the energy sector, and recommendations by IPCC and IEA.	❌
Reducing emissions	Establish a clear plan to adopt emission reductions measures aligned with 1.5°C-compatible trajectories in the energy sector.	❌
	Align capital allocation with 1.5°C-compatible trajectories in the energy sector.	❌
Disclosing emissions	Provide honest and accurate GHG emissions disclosures.	❌
Lobbying	End lobbying and obstructing climate policies.	❌

Introduction

The worrying speed and expected impact of global warming demands urgent and radical transformative action. The fossil fuel industry, through the carbon dioxide (CO_2) and methane released during the production and burning of oil, gas and coal represents the largest source of anthropogenic greenhouse gas emissions (85%) driving global warming and its consequential catastrophic impacts, according to the IPCC. The oil and gas sector is a major source of CO_2 and methane (CH_4) emissions.

Limiting the global average temperature rise to 1.5°C compared to pre-industrial levels - as called for in the Paris Agreement - requires radical action: emissions of greenhouse gases need to fall by 43% and carbon dioxide by 48% by 2030, according to the IPCC.

On a planetary scale, net zero refers to a state when all the CO_2 still emitted by human activities is balanced by the physical removal of carbon dioxide from the atmosphere. The net-zero concept is underpinned in the Paris Agreement which calls upon its compliant Parties to "achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" in order to limit global warming to "well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees".

This report assesses how Occidental Petroleum Corporation (also known as Oxy), a United States multinational energy company and one of the largest producers of oil and gas in the US Permian Basin, is engaging with the concept of net zero. Oxy was selected for this analysis due to the preeminence of their public messaging on removals as a means to continue oil exploitation and their acquisition of a major direct air capture technology company (Carbon Engineering) in 2023.

Their CEO has stated publicly that direct air capture "is going to be the technology that helps to preserve [the oil and gas] industry over time" and extends a licence to operate for "60, 70, 80 years".

According to a recent analysis by corporate lobbying watchdog InfluenceMap, Oxy ranks 26th on a list of 78 fossil fuel and cement producers that are responsible for more than 70% of cumulative historical emissions between 1854 and 2022.

The company has announced plans to "open the drain" and pursue large-scale direct air capture (DAC) technology projects that aim to extract CO_2 out of the atmosphere. Today, around 2 gigatonnes (Gt) of CO_2 is removed globally from the atmosphere each year, with the vast majority (99.9%) currently achieved through natural sinks. Other fossil fuel majors, such as Chevron, TotalEnergies and Shell are also expressing interest in DAC; but Oxy is leading efforts to test the feasibility of the technology at scale, betting a billion dollars on its potential.

This report contributes to a broader discussion on the role of carbon removals in a low-carbon society by investigating the credibility of Oxy's net-zero strategy, and whether it is aligned with the 1.5°C Paris-aligned temperature goal. We give particular attention to IPCC and IEA recommendations for the oil and gas sector, and Oxy's engagements with carbon markets and their claim to sell "net-zero oil".

Methodological note:

We conducted a comprehensive review of grey literature, including reports, white papers and any other types of documents published by Oxy, industry businesses, academic institutions, press organisations, and government agencies to gather insights and answers to our research questions. To ensure accuracy of this report, CMW contacted Oxy and 1PointFive on multiple occasions to request information, but received no response.

CARBON REMOVALS EXPLAINED

Also referred to as negative emissions, carbon dioxide removal (CDR) involves the physical removal of CO_2 from the atmosphere with the intention of permanently storing the captured CO_2. Climate scientists agree that in order to limit global warming to 1.5°C, some level of CDR will be required in addition to rapid cuts in GHG emissions.

A term often inaccurately conflated with carbon removals is carbon capture and storage (CCS), which is an existing technology that captures CO_2 emissions from point sources like power plants or industrial facilities before the emissions can be released into the atmosphere. The captured CO_2 is then transported and injected into geological storage sites. CCS is an emissions reduction technology; it only avoids emissions from being emitted into the atmosphere rather than actively drawing GHGs down.

Carbon capture and utilisation (CCU) is another existing point source carbon capture technology. The 'U' in CCU indicates that fossil carbon is "used" in, often short-lived, products and services. CCU does not actually reduce emissions but, in general, merely delays them: for example, when carbon dioxide is captured and used to produce e-fuels. When those fuels are burned the CO_2 is released back into the atmosphere.

Direct air capture (DAC) captures CO_2 directly from the atmosphere. It uses high-powered fans to draw in CO_2 from ambient air and chemical solvents and sorbents to isolate the CO_2 molecules. The CO_2-depleted air is then released back into the atmosphere. The term DAC does not prescribe how the captured CO_2 will be treated. The extracted CO_2 may either be transported to geological formations deep underground for permanent storage, in which case carbon removal happens through direct air capture with carbon capture and storage (DACS or DACCS). Alternatively, the CO_2 may be repurposed to make fuels or plastics in a process known as direct air capture and utilisation (DACCU).

Any captured carbon can be used to increase fossil fuel production in a process known as "enhanced hydrocarbon recovery", the most common form being "enhanced oil recovery", a process where CO_2 is pumped into oil reservoirs to extract more oil.

1. Assessing Oxy's net-zero strategy

The four levers of Oxy's Net-Zero Strategy to decarbonise the company's emissions sources across all three scopes are arranged under four Rs. The company seeks to "reduce" operational emissions, "revolutionise" its carbon management through what it calls carbon injection, and "remove" CO_2 from the atmosphere, though 'remove' is a misnomer as the GHGs wouldn't necessarily be stored permanently. It also intends to "reuse and recycle" CO_2 by prioritising carbon capture and utilisation (CCU). While this report will analyse elements found within the four Rs, such as Oxy's DAC technology, its CCU activities, and role in carbon markets, it will not base its analysis on the logic of this framework as these pillars are vague and tend to overlap.

This section will first analyse Oxy's targets, or lack thereof, including its absolute and intensity targets. It will then look at the insufficient measures the company has taken to achieve deep decarbonisation. Next, it will set out Oxy's misleading climate disclosures, as shown through its failure to uphold GHG protocol standards, amongst others. Subsequently, it will look at Oxy's lobbying efforts in advocating for oil and gas, revealing how these activities are inconsistent with the criteria laid out by Oil Change International, InfluenceMap and the Global Standard on Responsible Climate Lobbying.

The final part will focus on Oxy's reliance on DAC technology to achieve net-zero targets. It explores potentially exaggerated planned capacity for DAC, the numerous credit purchase agreements it has entered into with a variety of multinationals, and the associated offsetting and double-counting risks.

1.1 Inadequate net-zero targets

Oxy frequently states that it has adopted various goals for achieving net-zero greenhouse gas (GHG) emissions that align with the Paris Agreement.[1,2,3] In reality, Oxy has set just one net-zero GHG emissions target to address its direct operations and indirect energy use (scope 1 and 2 emissions) by 2040. It has not set any interim targets for its value chain emissions (scope 3 emissions), despite these representing the vast majority of a fossil fuel company's carbon footprint, and the effectiveness of climate pledges in driving decarbonisation hinges on their inclusion.

Other so-called net-zero emissions "goals" are merely aspirational statements. These include an "ambition" to: reach its net-zero GHG emissions target across scope 1 and 2 emissions before 2035; achieve net-zero GHG emissions across scopes 1, 2 and 3 before

[1] Oxy's position on climate-related policies, Oxy, 2023, p2
[2] Oxy zero in - 2023 proxy statement, Oxy, 2023, p12
[3] Climate report 2023: Leading the way in carbon management, Oxy, 2023, p2

2050; and to "advance a net-zero world" after 2050 through global deployment of carbon capture and storage (CCS) and DAC technologies.

Furthermore, Oxy has established various interim emissions reduction targets for its scope 1 and 2 GHG emissions, both on an absolute and intensity basis (see Table 2). An absolute emissions reduction target aims to reduce actual emissions in a future year compared to a base year. For example, an oil company sets a target to reduce GHG emissions by 50% by 2035 relative to a 2023 base year. An intensity emissions reduction target is set relative to a business metric. For example, an oil company commits to reducing GHG emissions by 60% per barrel of oil by 2035.

Oxy's absolute emissions reduction targets for its scope 1 and 2 emissions represent less than 10% of its total emissions. By 2024, Oxy aims to reduce these operational emissions by 3.68 million metric tonnes (MMt) per year based on 2021 emissions, representing a 15.8% reduction, from 23.34 MMtCO2 equivalent (CO2e) in 2021 to 19.66 MMtCO2e in 2024. This is below what is required for Oxy to meet its climate responsibility, particularly since the International Energy Agency's (IEA) Net Zero Emissions (NZE) by 2050 scenario indicates that the operational emissions of the oil and gas industry must decline by 60% by 2030. Since Oxy has not established any targets to reduce its scope 1, 2 or 3 GHG emissions on an absolute basis by 2030, 2040 and 2050, it is challenging to assess the ambition of the company's net-zero target and aspirations. The lack of binding and intermediate targets with clear target years undermines any statements that Oxy is "Paris Agreement aligned".

As to its intensity emissions targets, Oxy has set two carbon intensity reduction targets and one methane intensity reduction target by 2025 (see table). A core issue with intensity targets is that they do not necessarily result in reductions in absolute emissions. For example, Oxy might be able to reduce the carbon intensity of its scope 1 and 2 CO_2 carbon dioxide emissions and its methane intensity of production, but considering the company's plans to continue and expand drilling in oil and gas (see below), it is likely that overall total emissions will actually increase significantly.

Table 2: Oxy's climate targets and ambitions

Data source: Climate report 2023: Leading the way in carbon management, Oxy, 2023, p42

Target date	Type	Metric
2024	Absolute	Reduce total operational (scope 1 and 2) GHG emissions across the value chain by 3.68 million metric tonnes per year compared to 2021 emissions
2025	Absolute	Reduce Oxychem's total operational (scope 1 and 2) GHG emissions by 187,990 metric tonnes per year or 2.33% from its multi-year baseline (period from 2014-2019)
2030	Absolute	Eliminate routine flaring emissions (scope 1)
2032	Absolute	Facilitate geological storage or use of 25 million metric tons of captured CO_2equivalent in the value chain per year
2025	Carbon intensity	Reduce total operational (scope 1 + 2) GHG emissions intensity of Oxychem's products by 2.70% from its multi-year baseline (period from 2014-2019)
2025	Carbon intensity	Reduce total oil and gas operational (scope 1 + 2) GHG emissions intensity to 0.02 $MTCO_2e$/BOE
2025	Methane intensity	Reduce methane emissions intensity to below 0.25% (based on operated wet gas production for market)
2035	Net-zero aspirational target	Achieve net-zero for scope 1 and 2 GHG emissions before 2035
2040	Net-zero target	Achieve net-zero for scope 1 and 2 GHG emissions before 2040
2050	Net-zero aspirational target	Achieve net zero for total carbon inventory (including scope 3 emissions chiefly from the use of Oxy's products) before 2050
2050	Net-zero aspirational target	Achieve "total carbon impact through global deployment of CCUS, Direct Air Capture and other solutions to advance a net-zero world beyond 2050"

1.2 No measures for deep decarbonisation

This section examines the measures that Oxy has in place to achieve deep decarbonisation, that is fast and substantial emissions reductions, throughout this decade.

Short term falls in scope 1 and 2 emissions

According to Oxy's own 2023 climate report, between 2019 and 2022, the company reduced its scope 1 and 2 CO_2e emissions by around 5MMt, or by 18%. These were primarily driven by reductions in flaring; efforts to retrofit pneumatic devices to reduce vented methane emissions; and compression upgrade projects in Oman.[4] However, according to the World Benchmarking Alliance, Oxy's current investment trend indicates that this reflects short term reduction in carbon intensity of its products rather than a real transition.

In 2019, Oxy began operating its Goldsmith Solar Plant to power its operations at the Goldsmith enhanced oil recovery field. In 2022, the plant resulted in a reduction of 16,000 $MtCO_2$, a fraction of its scope 2 emissions which stood at 4.9 $MMtCO_2$. That same year, Oxy also acquired a stake in NET Power, a technology company that uses fossil gas to make so-called "clean energy". Oxy is currently in the process of designing a NET Power plant in the Permian Basin to power their operations there, with construction expected to be completed by late 2026.

In its previous climate reports, Oxy indicated that it expected the plant to deliver 300 MW of what it describes as "clean, dispatchable power", and which it claims has a "minimal footprint when compared to wind and solar facilities". However, not only is the oxy-combustion process energy hungry, undermining Oxy's claim that it is better than renewables, Oxy intends to use around 860,000 $MtCO_2$ per year captured through NET Power's electricity system for enhanced oil recovery or carbon utilisation applications. However, according to the International Energy Agency, pumping carbon dioxide into wells to enhance oil recovery actually results in more CO_2 emissions from burning the produced oil than the carbon it stores underground. Therefore, Oxy risks increasing its scope 3 emissions using NET Power's technology.

Overreliance on unproven technologies

Instead of winding down oil and gas production, Oxy's aspirational target to reduce its scope 3 emissions relies heavily on direct air capture (DAC) carbon capture and storage (CCS), as well as carbon capture and utilisation (CCU) technologies - each have different technological readiness levels, but all are unproven at scale. The commercialisation and

[4] Climate report 2023: Leading the way in carbon management, Oxy, 2023, p43 and p46

deployment of these technologies is being carried out by 1PointFive, a subsidiary of Oxy's Low Carbon Ventures (OLCV) business launched in 2018.

All three technologies are not only costly and energy-intensive but are also risky investments. For instance, despite extensive research and investment, many CCS facilities in the United States have stalled. Last year, Oxy quietly sold its struggling CCS Century plant, described as the largest in the world, for a fraction of the construction cost as the plant only managed to work at a third of its capacity.

Moreover, these technologies can be used to extract or prolong the life of fossil fuels, or have little to no positive climate impact. For instance, with CCU, the carbon is frequently "used" for short-lived products and services, in this case for e-fuels. This means emissions are not reduced, but delayed, as when aeroplanes burn their so-called "sustainable aviation fuel" the previously captured carbon is released back into the atmosphere. These examples should serve as a cautionary tale about the dangers of relying on carbon capture technologies.

1.3 Misleading climate disclosures

Since 2018, Oxy's climate reports have used the voluntary framework of the Task Force on Climate-related Financial Disclosures (TCFD) to communicate climate-related risks and opportunities. The TCFD asks companies to report on and calculate their scope 1, 2 and material (significant) scope 3 GHG and historical emissions in line with the GHG Protocol methodology

According to the GHG Protocol and the ISO's Net Zero Guidelines, companies should report their scope 2 emissions using both location-based and market-based accounting methods, counting the higher of the two values towards their total emission estimates. A location-based method calculates emissions based on the average emissions intensity of the local grid area where the energy consumption occurs. A market-based approach reflects the emissions associated with different types of contractual instruments, such as renewable energy certificates (RECs). Despite the obligation to divulge market-based emissions, Oxy only discloses its location-based emissions (see table on emissions data).

The GHG Protocol's Scope 3 Standard requires companies to identify and quantify scope 3 emissions in 15 distinct reporting categories. Oxy only considers three of these categories as material to their business: the downstream transportation and distribution of its oil and gas products (category 9); the processing and refining of its oil and gas products (category 10); and the use of its sold products by consumers (category 11).

In the interest of accuracy and transparency, Oxy should report on additional categories (e.g. category 3, business travel). Moreover, the company should transparently reveal its

total scope 1, 2, and 3 emissions for each reporting year or each part of its operations, which has been notably absent in previous climate reports. Oxy should therefore provide a clear explanation for why it does not disclose scope 3 emissions related to its Oxychem division (see Appendix).

Although Oxy disclosed its proven reserves at the end of 2023 (over 3.9 billion barrels of oil equivalent, representing a 160 million barrel increase over 2022), further transparency on its fossil fuel reserves is needed in future climate reports. As outlined by the GHG Protocol, this includes data on potential emissions from both its proven and probable reserves; whether emissions estimates have been adjusted to account for enhanced hydrocarbon recovery (EHR) projects; and accounting for losses of non-sales quantities from flaring and leakage - this amount is not available for sale and must therefore be excluded from reported reserves figures.

1.4 Oil and gas advocate

The Global Standard on Responsible Climate Lobbying recommends that companies champion climate policies that are in line with the Paris Agreement. While Oxy has stated that it supports "a range of policies aimed to achieve the goals of the Paris Agreement", a closer look reveals a stark disconnect between the company's public pronouncements and its efforts to undermine ambitious climate change policies.

Climate Action 100+, a global investor initiative pushing companies towards net-zero alignment with the Paris Agreement, has exposed this gap. In 2023, Oxy received a meagre 21% on its scorecard for failing to robustly identify, report on and address the misalignment between its policy engagement (i.e. lobbying) activities and meeting the Paris Agreement 1.5°C goal.

Furthermore, OpenSecrets, an independent research group tracking the influence of money on US politics, revealed that Oxy, as well as other oil and gas giants in the United States, like ExxonMobil and ConocoPhillips, actively lobbied for federal funding of carbon removals technologies. The company spent nearly $6 million on lobbying in the first half of 2023. In the summer of the same year, the US Department of Energy revealed that it would provide up to $1.2 billion in federal funding to two direct air capture projects, one of which is being developed by Oxy. Oxy has also declared its support for federal tax credits to finance carbon capture technologies (known as the 45Q enhancement under the Inflation Reduction Act).

This concerted lobbying effort to secure government subsidies for unproven and expensive technologies represents, at best, a distraction from truly impactful climate action and, at

worst, a waste of taxpayer money to provide a costly fig leaf for polluting business as usual practices.

In March 2024, the US Securities and Exchange Commission (SEC) enacted mandatory climate disclosures, but watered down proposed requirements regarding scope 3 emissions after heavy lobbying by the fossil fuel industry. Under the new rules, companies will be required to quantify and provide disclosures on all scope 1 and 2 emissions, but only on those scope 3 GHG Protocol categories that companies consider financially "material", affording them considerable leeway to disclose cherry-picked data that understates their value chain emissions. Notably, Oxy lobbied for this, advocating in a letter to the SEC for companies to "identify and report emissions estimates only from the scope 3 emissions categories that are material to their business".

1.5 DAC: Believing in far-fetched airy tales

According to the IEA, in order to meet the Paris Agreements' critical threshold of keeping global warming under 1.5°C, oil and gas companies should implement robust measures that enable deep and fast emissions reductions throughout this decade. In this section, we examine the role of DAC in Oxy's net-zero strategy to reduce the company's scope 3 emissions, which accounted for over 90% of Oxy's total emissions in 2022.[5]

DAC plays a major role in Oxy's CEO Vicki Hollub's vision. She has publicly stated that it "is going to be the technology that helps to preserve [the oil and gas] industry over time" and extends a licence to operate for "60, 70, 80 years". In early 2022, Oxy Low Carbon Ventures, an Oxy subsidiary, announced plans to deploy up to 70 DAC plants worldwide by 2035, and as many as 135 plants by 2035 under a "net-zero support scenario". As explained in Oxy's climate report, this scenario assumes that global net-zero targets will increase global policy incentives and market demand for DAC technology.

Moreover, six sequestration hubs with a collective capacity to capture up to 6 billion metric tonnes of CO_2, of which five are currently in progress, are envisioned to be constructed under this global net-zero support policy scenario. In October 2022, Oxy and 1Point5 signed an agreement with King Ranch in Kleberg County, South Texas, to lease more than 100,000 acres to support the development of "large-scale" DAC facilities. Oxy expects its King Ranch site to be home to "the world's first DAC facility designed to remove up to 1MMt of CO_2 per year". Overall, Oxy is planning to build up to 30 DAC plants on this "South Texas DAC hub" site, each with an annual CO_2 removal capacity up to 1MMt.

In 2023, Oxy purchased Carbon Engineering for $1.1 billion (a major direct air capture technology company) to supply Oxy with the technology for STRATOS, Oxy's first DAC

[5] Climate report 2023: Leading the way in carbon management, Oxy, 2023, p49

megaplant. STRATOS construction is taking place on a remote 65-acre site in Ector County, in the Permian Basin of West Texas. As of 2023, works were approximately 30% complete. Once fully operational, by mid-2025 (a year later than planned), the plant is expected to capture up to 500,000 Mt of atmospheric CO_2 per year.

Despite initial statements claiming the STRATOS plant would be capable of capturing up to 1MMt of CO_2, its newly advertised and significantly reduced capacity would still render it 125 times larger than the current largest DAC plant in the world, the Climework's Orca plant in Iceland, which can remove 4,000 tonnes of CO_2 from ambient air each year. Globally, 27 DAC plants currently capture around 10,000 tonnes of CO_2 per year. This apparent massive leap in scale raises serious concerns about the technological feasibility of building the STRATOS plant and operating it at capacity.

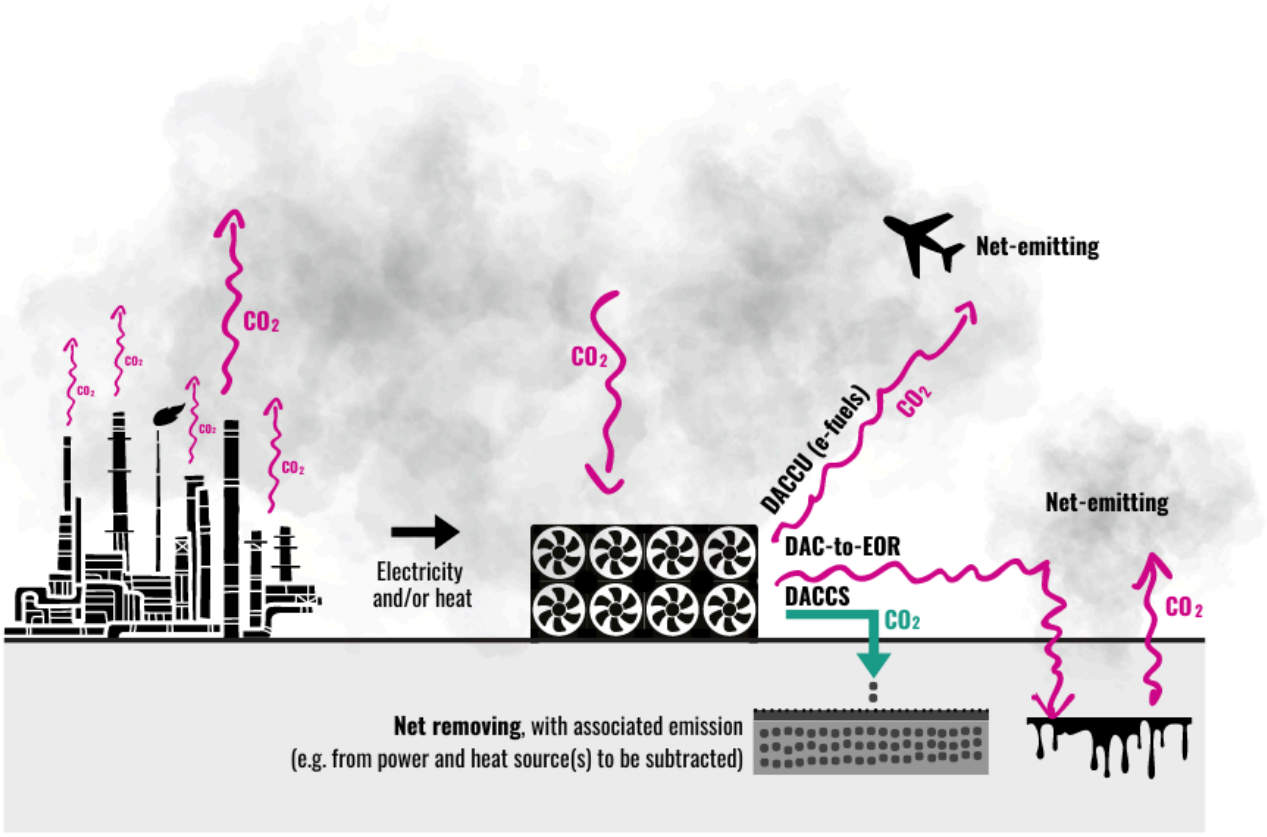


Figure 1: Explainer graph - DAC vs DACCS vs DACCU

1.5.1 DAC credits and offsetting

Although the STRATOS plant nameplate capacity may be half a million metric tonnes of CO_2 sucked out of the air each year, this remains fairly insignificant considering the full scope of Oxy's emissions. This is even more the case when we consider the emissions from the DAC plant which need to be discounted.

The US Department of Energy's National Energy Technology Laboratory (NETL) estimated that a DAC plant using the Carbon Engineering technology (such as STRATOS) would release 610 kilograms (kg) of CO_2 into the atmosphere for every tonne of CO_2 it captures from the atmosphere. These substantial associated emissions are caused by the need for natural gas to provide heat and power to the liquid-solvent based Carbon Engineering direct air capture process. These lifecycle emissions associated with the plant and the DAC process need to be factored in to accurately assess the net amount of carbon that is removed from the atmosphere by any installation or project (also known as the 'net-removal benefit').

Note that it could be possible to run Carbon Engineering's DAC technology on renewable energy or green hydrogen to significantly reduce associated emissions, we have not encountered any information indicating that Oxy plans to transition to renewable energy or green hydrogen at any point in the near future.

As explained by CIEL, applying the associated emissions penalty calculated by NETL to STRATOS means that it only results in a net removal of under 400 kilograms per tonne of DAC,[6] causing advertised capacity of STRATOS to plummet to 195,000 tonnes instead of half a million.[7] This more realistic capacity represents a vanishingly small fraction of the Oxy's total emissions in 2022 (0.08%) (see Appendix).

If Oxy were to attempt offsetting by successfully building 135 DAC plants, each mirroring the actual capture capacity of their flagship STRATOS plant, it could offset at most 11% of its total GHG emissions in 2022. If the 135 built plants would have 1 Mt capacity, that would balance out at most 22% of its total emissions in 2022. This assumes that all the CO_2 captured through DAC is permanently stored away and not utilised for other purposes such as EOR or e-fuels.

In this vein, it is worth mentioning that IEA's NZE scenario indicates that the global energy sector would achieve net-zero CO2 emissions by 2050 "with no offsets… and with low reliance on negative emissions technologies". Similarly, in 2022, the UN High-Level Expert

[6] Figure based on the US average grid mix, and may vary depending on energy (heat and power) sources

[7] Note that this number is actually a conservative estimate. Oxy has not publicly stated where the heat needed to run STRATOS would come from (electricity would be solar powered), but an assumption can be made that in the future fossil gas would be used. A further assumption is carbon-capture and storage would be used to limit the emissions from that installation. While this would at first sight actually reduce the associated emissions penalty for STRATOS, it would actually most likely lead to increased associated emissions as Oxy would most likely use the captured CO2 for enhanced oil recovery (more on that below). Enhanced oil recovery causes more GHG emissions due to increased fossil fuel production and consumption than are stored away. These assumptions are speculative in nature due to lack of clarity from Oxy, so no CCS nor EOR is assumed in the calculations to ensure a conservative but realistic approach.

Group on the Net-Zero Emissions Commitments of Non-State Entities urged corporations to prioritise immediate and deep emissions reductions across their value chains instead of using carbon credits to offset emissions. Yet, Oxy's monetisation approach hinges on selling carbon credits generated by its future DAC plants. Although STRATOS is not yet built, 1PointFive has already signed various purchase agreements for DAC credits with numerous high-profile customers across the tech, banking, sports and aviation sectors, such as Amazon, Airbus, and TD Securities (see Table 3).

In 2023, Airbus entered into an agreement with Oxy to buy 400,000 carbon credits from STRATOS, marking the largest DAC credit purchases yet. Generally, the volume of DAC credits Oxy aims to sell far outweigh the net carbon removals STRATOS is likely to achieve. To date, Oxy says it has has pre-sold or is in late-stage negotiations to sell approximately 65% to 75% of DAC credits generated from STRATOS through 2030, totalling approximately 1.63 million to 1.98 million credits, according to our calculations, with deals in the pipeline that will raise the figure to 85%. This corresponds with Oxy's intention to sell up to 90% of the CO_2 purportedly captured through its DAC plants in the form of carbon credits. Given the low life cycle efficiency of the STRATOS plant highlighted above, selling this many credits will lead to a massive deficit of removals in the only accounting system that counts: the atmosphere.

Beyond the pipe dream of using direct air capture to offset emissions, such an endeavour also carries the very real risk of double counting. Companies purchasing Oxy's DAC credits may use these credits for compensatory claims. One carbon credit represents one tonne of CO_2 avoided, reduced or removed and can therefore only be claimed once. If Oxy uses its DAC plants to offset its own scope 1, 2 and 3 emissions - and sells DAC units to be used by another company or counted towards another country's climate targets, there is a real risk of this constituting the kind of double counting that lowers overall climate ambition.

More worryingly, the DAC credits used to make offsetting claims may not represent permanent carbon removals. Oxy's agreement with Amazon, as well as those with Japanese airline All Nippon Airways (ANA), the Houston Astros baseball team, Houston Texans American football team, and Canadian investment bank TD Securities explicitly call for permanent storage of the CO_2 captured by STRATOS in saline reservoirs not used for oil and gas production. However, Oxy has indicated that an unspecified percentage of the DAC-captured CO_2 could also be used for EOR or DACCU applications such as e-fuel. Moreover, last year, Oxy signed an agreement with SK Trading, an Asian trading house, to export so-called "net-zero oil" and started a collaboration to use removed carbon dioxide to produce supposedly sustainable aviation fuel.

This paves the way to a potential nightmare scenario in which DAC credits not only fail to represent the tonne of carbon attributed to them, but are also used to make double or triple claims: offsetting emissions (possibly for more than one company), to produce sustainable aviation fuels or to produce more GHGs through enhance oil recovery. This means that the atmosphere sees increased emissions from these DAC projects, while

emissions appear to fall on paper. Oxy cannot use the same DAC capacity for offsetting its own emissions as it would use to generate carbon credits to be sold or for the production of e-fuels.

A solution to multiple claiming issues would be to move away from an offsetting model, in favour of a contribution claim model. This model allows companies to use existing carbon markets to disburse climate finance by buying and retiring carbon credits, without claiming ownership of the emission reductions or making offsetting claims. Overall, this approach offers a more transparent and accurate way for companies to communicate their climate ambition.

Table 3: This table shows the product sales that Oxy has advanced through its subsidiary 1PointFive to date. The left column lists the companies that have signed either DAC credit purchase agreements with 1PointFive, or offtake agreements with 1PointFive to purchase "net-zero oil" (or sustainable aviation fuel). The middle column shows the respective amounts of CO_2 that will be captured to fulfil obligations under the agreements, with the rightmost column showing how the captured carbon will be treated.

In the right hand column, the stipulations on where captured carbon is supposed to end up. 'Permanent geological storage' means that CO_2 storage "in saline reservoirs" without EOR is indicated. 'Carbon utilisation' refers to use in e-fuels. 'EOR' means captured carbon is used to increase fossil fuel production through enhanced oil recovery. Finally, 'Unclear' has been added when no information on end use of carbon is available; or when it is not explicitly stated that the CO_2 will be stored in saline reservoirs and not be used for EOR.

Company	Carbon Capture Capacity in metric tons (MT)	Treatment of captured carbon: permanent geological storage, carbon utilisation, EOR, unclear
Airbus (Oxy 2023; ; oxy; Airbus)	400,000	Unclear
Amazon (Oxy 2023; Oxy)	250,000	Permanent geological storage
BMO Financial (Oxy 2023; BMO)	1,000	Unclear
SK Trading (Oxy 2022)	100,000	EOR
Trafigura (Oxy)	50,000	Permanent geological storage
All Nippon Airways (ANA) (Oxy 2023; oxy; ANAgroup)	30,000	Permanent geological storage
TD Securities (Oxy 2023; Oxy)	27,500	Permanent geological storage
Boston Consulting Group (BCG) (Oxy)	21,000	Unclear

Shopify (oxy; oxy; (carbon engineering 2021))	10,000	Unclear
ThermoFisher (oxy; oxy)	Unclear	Unclear
Houston Astros baseball team (Oxy 2023; Oxy 2023)	Unclear[8]	Permanent geological storage
Houston Texans football team (Oxy 2023; Oxy 2023)	Unclear[9]	Permanent geological storage
NextGen CDR Facility (CP 2023; South Pole; Next Gen)	Unclear	Unclear
Rockwell Automation (Rockwell automation)	Unclear	Unclear
United Airlines (cemvita; cemvita)	Unclear	Carbon utilisation
AT&T (oxy)	unclear	Permanent geological storage

Source: Authors elaboration of public disclosures of agreements

1.5.2 Energy-intensive and expensive

In order to guarantee that DAC plants achieve net-negative emissions (i.e. remove more CO_2 emissions from the atmosphere than the amount released back into it), it will be crucial to couple these with cheap and additional renewable energy sources. However, Carbon Engineering employs liquid solvent for Oxy's DAC technology, which requires high temperatures that are reliant on fossil gas. The estimated energy requirements of Carbon Engineering's DAC technology are approximately 8.8 GJ per tonne of CO_2 captured. This means that one STRATOS plant with a capture capacity of 500,000Mt of CO_2 per year would consume enough natural gas to provide heating and cooking for 35,000 Canadian homes, emitting an additional quarter of a million tonnes of carbon dioxide. Detailed public information on heat and power sources for STRATOS is not available, though there have been indications in the media that (some of) the electricity supply would be solar. For heat, the plant is likely to rely on fossil gas for the foreseeable future.

The choice of power source for Oxy's DAC plant will also influence associated costs. Current cost estimates for its DAC technology range from $400-$500 per tonne of CO_2, but Oxy expects costs to drop to as low as $200-$250 per tonne in the second half of this decade once it enters "manufacturing mode". This compares to a targeted revenue of $580-$810 per tonne of captured CO_2 from STRATOS, with up to 45% of the initial cost per tonne being

[8] Equivalent to the teams' estimated regular season away-game flight emissions for three seasons + additional CDRs for emissions related to the operation of their stadium
[9] Equivalent to the teams' estimated regular season away-game flight emissions for three seasons

paid through the 45Q tax credit. In 2022, following the enactment of the US Inflation Reduction Act (IRA), Oxy became eligible for increased 45Q credits for capturing CO_2 via DAC of $180 per tonne if the CO_2 is stored and $130 if the CO_2 is used for EOR projects.

Oxy could access even more money from enhanced 45Q incentives under the IRA. For every tonne of CO_2 captured at point sources, such as gas plants or NETPower plants, the company can apply for tax credit values of $85 if the CO_2 is stored, and $65 if used for drilling oil. Currently, the company stores up to 20MMt of CO_2 annually in underground formations as part of its EOR operations, potentially yielding $1.3 billion. According to a congressional research agency, the 45Q programme will cost taxpayers $2.3 billion over 10 years.

In August 2023, the US Department of Energy (DOE) also announced that it will allocate up to $600 million towards the development of the Oxy South Texas hub's inaugural DAC plant, poised to be the world's first designed to remove CO_2 at a megatonne scale. The funds are part of a larger $3.5 billion DOE funding programme to help accelerate the deployment of four regional DAC hubs with a capture capacity of 1 Mt CO_2 a year in the United States, made available through the Bipartisan Infrastructure Law. The law also allocates $4.6 billion in funding to develop enabling CDR infrastructure, such as CO_2 pipelines and geological storage and $100 million in funding for pilot-testing of a range of carbon removals solutions, including DAC. Furthermore, the DOE has launched a $35 million carbon removal purchase programme to directly buy carbon removal credits from four carbon removal methods, including DACCS. California's Low Carbon Fuel Standard, meant to help decrease emissions from transportation, could also provide Oxy with the opportunity to sell DAC carbon credits, even if the captured CO_2 would be used for EOR.

Beyond federal and state policy support, Oxy's 1PointFive subsidiary has secured a $550 million corporate investment from global investment giant BlackRock to complete STRATOS. The investment, which will be carried out through a joint venture, accounts for approximately 40% of the project's total $1.3 billion cost.

The above has shown not only how expensive direct air capture technology is but also how vast amounts of taxpayer and private funds are being pumped into a supposed solution that does nothing to solve the fundamental problem of high emissions.

Oxy has indicated that the capital cost for a 1 MMT/year DAC plant could amount to no less than $1.76 billion.[10]

[10] Oxy CDP questionnaire 2023, p31

2. “Net-zero oil”: a pipedream

Oxy defines net-zero oil as “crude oil combined together with environmental attributes generated through the removal and sequestration of atmospheric CO_2 through an enhanced oil recovery process in an amount equivalent to the CO_2 associated with the production, delivery and refining of the crude oil and the use of the resulting product”.

“Net-zero oil” has become part of Oxy’s monetisation strategy for its DAC plants. Vicky Hollub, Oxy’s CEO, has now set her sights on DAC as the next big technology to continue business as usual. She has stated that storing the DAC-captured CO_2 underground is “a waste of a valuable product” and is “missing an opportunity to produce net-zero oil.” She presumes that DAC will give the oil and gas industry a licence to operate indefinitely, claiming that "there is no reason not to produce oil and gas forever". These remarks lie in stark contrast with rival DAC company Heirloom, which highlighted the importance of protecting the DAC industry and ensuring that DAC is not “used as a fig leaf to emit even more”. At present, Oxy positions itself as “the Permian’s leader in EOR”, where it has 34 active EOR projects and a network of pipelines to transport CO_2 to oil fields.

In this section, we demonstrate how and why Oxy’s ”net-zero oil” claim is not credible and fails to reduce emissions, in line with 1.5°C pathways. On the contrary, Oxy is boosting oil and gas production in defiance of IPCC and IEA recommendations. “Net-zero oil” amounts to little more than a marketing gimmick for oil and gas companies to continue dangerous business as usual operations.

2.1 On the wrong path

Not only is “net-zero oil” an oxymoron and a logical fallacy, it also does nothing to adequately reduce the company’s scope 1, 2 and 3 emissions and align its business with 1.5°C-compatible climate mitigation pathways for the energy sector. Instead, Oxy plans to increase production and allocate the majority of its capital expenditure to oil and gas. Furthermore, Oxy’s planned use of enhanced oil recovery and carbon capture and utilisation constitutes a highly problematic side venture of direct air capture.

2.1.1 Boosting oil and gas production

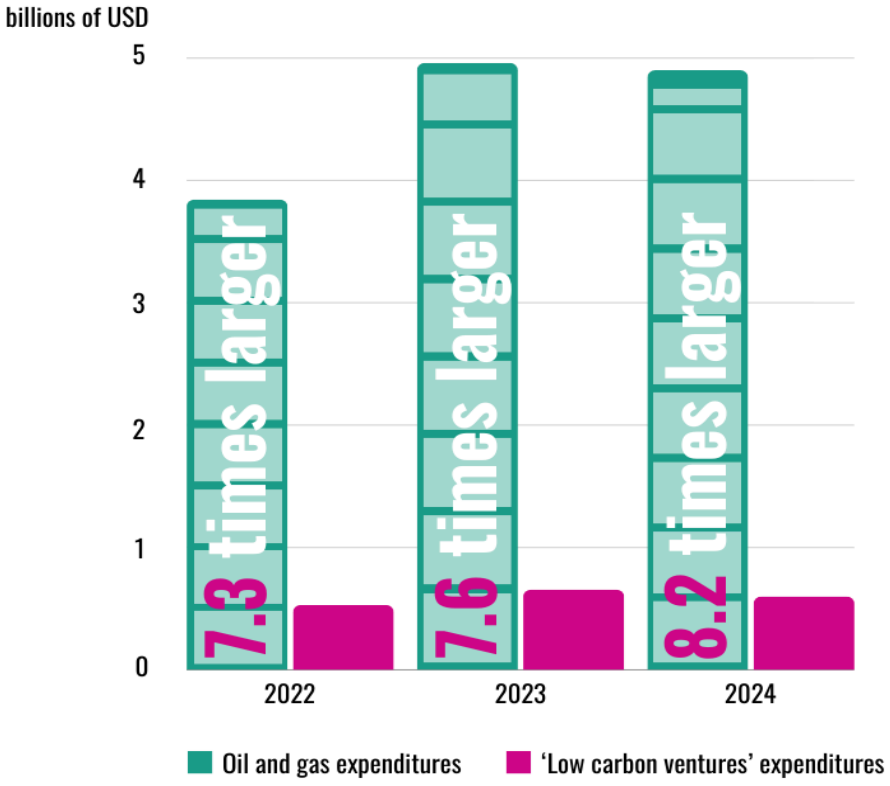
This year, Oxy aims to produce up to 1.3 million barrels of oil equivalent per day, representing as much as a 10% increase in its oil and gas production compared to 2022.

This production does not include any additional oil and gas production resulting from Oxy's acquisition of CrownRock LP for $12 billion. The acquisition will add approximately 1,700 undeveloped locations to Oxy's operations in the Permian Basin, and an incremental production in the Midland Basin of 170,000 barrels of oil equivalent per day in 2024. This increases Oxy Permian's production to over 750,000 barrels of oil equivalent per day compared to 584,000 barrels per day in 2023.

In recent years, Oxy has directed a substantially larger portion of its capital expenditure towards oil and gas projects compared to low-carbon climate solutions. In 2023, Oxy allocated approximately $5 billion towards the development of its oil and gas assets. This is big bucks compared to the mere $656 million spent on Oxy's Paris-incompatible "net-zero pathway" advancements, which includes the construction of STRATOS,

Moreover, for every dollar Oxy spent on its "net-zero pathway" in 2023, it directed $7.60 more into oil and gas activities (see figure 2). In 2024, Oxy intends to allocate a similar level of expenditure of between $4.8 and $5 billion towards oil and gas activities, approximately eight times higher than the $600 million it has set aside for its so-called "low carbon ventures" pathway (which includes investments that are not beneficial to the climate).

Figure 2: Oil and gas vs 'low carbon ventures' expenditure



In its recent climate reports, Oxy has not transparently disclosed how much of its capital expenditure goes towards real climate solutions. Oxy brands its 16 MW Goldsmith solar plant as "the first large-scale solar facility in Texas". The reality is that, in 2022, Oxy's consumption of self-generated renewable energy totaled 33,845 MWh, accounting for a negligible 0.054% of its overall energy consumption (62,896,085 MWh). Oxy does not have any public plans we could uncover to invest in additional renewable energy.

Furthermore, in a recent assessment of 10 European and North American oil and gas companies by Climate Action 100+, Oxy received a 0% score on "climate solutions", in a tie with ConocoPhillips and Suncor, for its failure to align its future investments and energy production with 1.5°C scenarios such as the IEA's NZE. The World Benchmarking Alliance also found that Oxy is projected to exceed its 1.5°C carbon budget by more than 70% between 2022 and 2050.

2.1.2 Misalignment with the science

Oxy's commitment to continued oil and gas extraction directly contradicts scientific advice on climate change presented by the Intergovernmental Panel on Climate Change, the International Energy Agency and academic literature. The latest assessment report of the IPCC's Working Group III cautions that avoiding potentially "irreversible climate change effects" requires cutting GHG emissions quickly. It also explores a range of 1.5°C-aligned scenarios that avoid relying on CCS and CDR at unsustainable levels, and demand a decline in global oil and gas production and consumption by 30% by the end of this decade and by 65% by 2050. In the 1.5°C-compatible scenario, Low Demand Illustrative Mitigation Pathways (IMPs), that do not rely on CCS or CDR in the energy sector, fossil fuels are completely phased out.[11]

The IEA has also emphasised that phasing out fossil fuels to reduce emissions is the most technically viable and cost-effective way to achieve the 1.5°C goal. Approving any new oil and gas fields is incompatible with its NZE pathway. The updated version of the NZE scenario requires oil and gas companies to reduce production by more than 80% by 2050.

Taking the IEA's finding that there is no room for new fossil fuel activities if global warming is to be limited to 1.5°C, another paper has suggested that nearly 40% of developed oil and gas reserves must remain unburned in order to not exceed the 1.5°C temperature limit. It has also warned that oil and gas assets risk being stranded financially (and also physically) as the sector is under increasing pressure to transition to a low-carbon economy. In this vein, a recent analysis by Carbon Tracker ranks Oxy's portfolio of shale projects among the most at risk by a moderate energy transition, out of 25 of the largest oil and gas companies

[11] Page 309 of the Working Group III contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

in the world. As such, Oxy's claim that their "assets can generate returns under IEA's low-carbon scenarios" is completely false.

Other academic studies have arrived at similar conclusions. One study found that to align with 1.5°C-consistent pathways, oil and gas supply must decrease by 62% and 42% respectively, between 2020 and 2050. Climate Analytics projects the global production of oil and gas to decline even more steeply, by 67% and 54% respectively, between 2020 and 2050 under a median 1.5°C-compatible pathway.

Overall, the IEA, IPCC and academic literature confirm that as long as Oxy fails to set an explicit end date for its oil and gas extraction, accelerate its real decarbonisation efforts, and align its investments to 1.5°C pathways (including by funnelling investment away from fossil fuels rather than towards increasing their production), the company not only risks delaying the necessary energy transition to avoid climate breakdown but also creating stranded assets and destroying shareholder value.

2.1.3 Net-emitting DAC

Under a five-year agreement with SK International, Oxy said it would potentially inject around 100,000 Mt of CO_2 per year into producing oil and gas fields, enabling the purchase of up to 200,000 barrels of "net-zero" oil per year. Oxy claims that STRATOS will effectively remove enough CO_2 to counterbalance the entire lifecycle emissions generated from producing that oil, which would make it "net zero". Analysis by the US Department of Energy's National Energy Technology Lab, however, shows that Oxy's calculations do not add up. It found that Oxy's DAC-to-EOR system will actually result in net-positive emissions. Using DAC as a source of CO_2 somewhat reduces the climate impact of oil production that would otherwise be based on conventional EOR. But it doesn't balance out the emissions related to the burning of any additionally produced fossil fuels.

Each tonne of CO_2 injected into an oil field typically extracts around two to three barrels of oil. Since each barrel of oil releases about half a tonne of CO_2 when combusted, each ton of CO2 that Oxy injects into oil and gas producing fields will result in between about 1 and 1.5 tonnes of CO_2 when that oil is burned.

When factoring in the lifecycle emissions associated with running the STRATOS plant, the injection of 100,000 metric tonnes of CO_2 to meet the agreement with SK Trading - only 20% of the nameplate capacity of STRATOS - will result in annual net-positive emissions of between 161,000 to 211,000Mt of CO_2 per year. Even if the rest of the captured CO_2 would be safely and permanently stored underground, STRATOS would still emit between 5,000 and 55,000Mt of CO_2 per year. This confirms the fallacy behind Oxy's "net-zero oil" claim: DAC-to-EOR is still heavily net-emitting rather than 'net-zero'.

2.1.4 Beyond EOR

Oxy intends to use an undisclosed percentage of the captured CO_2 from STRATOS, not only for enhanced oil recovery, but also for various other utilisation purposes like the so-called "carbon-negative" sustainable aviation fuels (SAF). The company asserts that this would assist aviation, shipping and heavy industry sectors in tackling their emissions.

Oxy has invested in various companies, such as the biofuels, power generation, and plastic sectors that create opportunities for economic synergies with its DAC plants. One such company is Cemvita Factory, which uses CO_2 to manufacture chemicals and SAF. Oxy and Cemvita have partnered with United Airlines to provide the airline with up to a billion gallons (3.8 million cubic metres) of SAF.

The problem with producing products like SAF with DAC-sourced CO_2 is that it does not permanently remove emissions from the atmosphere but merely delays emissions. When SAF is burned, the CO_2 is released back into the atmosphere. This renders any "carbon-negative" or "carbon-neutral" product claims associated with Oxy's DAC plant scientifically invalid as more or an equal amount of CO_2 emissions are not being removed in comparison to those emitted.

Making such claims could expose companies to reputational damage or legal action for greenwashing over their misleading or deceptive claims. Complaints of misleading customers to pay a 'green fare' to contribute to the development of SAF are already being brought against 17 airlines, including KLM, Lufthansa, and Ryanair. Earlier in 2024, the District Court of Amsterdam ruled that KLM's advertising claims implying that flying can be a sustainable mode of transport through the use of SAF is misleading advertising and unlawful, serving as a strong warning to other companies. In addition, athletic apparel company Lululemon, which in the past has partnered with Oxy-backed Lanzatech to create fabric from recycled emissions, is currently being accused of greenwashing in a complaint filed by STAND.earth.

At present, companies are facing increased pressure when opting for offsetting activities, instead of reducing emissions. The rising number of legal cases indicates that the acceptability of claiming carbon neutrality or 'net-zero' is dwindling fast. In the EU, the Empowering Consumers for the Green Transition bans product-level 'climate-neutrality' or 'net-zero' claims, while the Green Claims Directive (currently being negotiated) should further empower consumers by introducing requirements on the substantiation and communication of environmental claims.

As such, so-called net-zero labels for products (including oil) promoted by Oxy and companies purchasing or supporting Oxy-backed SAF or 'net-zero' oil are not just problematic in terms of environmental integrity, they are also becoming a liability and coming to an end in the EU.

2.2 Delaying the energy transition

As mentioned previously, net-zero oil claims are not credible as emissions cannot be offset. By selling DAC credits to enable offsetting claims by other companies, and potentially using these credits itself to justify its own increasing emissions from growing fossil fuel production and EOR practices, Oxy is delaying the necessary energy transition towards a low-carbon society (known as 'mitigation deterrence'). Additionally, by using DACS to justify more fossil fuel production, they are overrelying on scarce carbon dioxide removals (CDR) that will be needed to compensate for hard-to-abate emissions.

Overreliance on removals is risky because CDR is not equivalent to emissions reductions. These are different activities that serve different purposes, have different climate impacts, and are therefore not interchangeable. Crucially, the potential availability and capacity of CDR is scarce and should consequently only be used to counterbalance truly residual emissions. Therefore, CDR should be considered supplementary to emissions reductions and must not obstruct near-term emissions reduction efforts.

Moreover, multiple studies have raised concerns about the possible adverse environmental and social effects of deploying CDR technologies, including DACCS, on biodiversity, land, food security, and water resources.[12] Generally, both the IPCC and IEA have noted that the deployment of unproven-at-scale technologies, such as DAC, are one of the greatest risks to keeping global heating to 1.5°C. Thus, instead of betting on technologically and economically unproven at scale DAC technology to justify continued pollution through offsetting, Oxy should simply slash its actual emissions and transition to a clean energy company.

[12] Dooley et al 2020; Brack & King 2021; Rosa et al

3. Conclusion

From the analysis, it is clear that Oxy has failed to set adequate GHG emission reduction targets that clearly demonstrate how those targets would be reached. Instead, the company relies heavily on offsetting, a practice incompatible with climate science.

Oxy's only real net-zero GHG emissions reduction target by 2040 does not include scope 3 emissions, therefore leaving out 90% of its 2022 emissions. Its three other net-zero GHG emission reductions are labelled "ambitions", rendering them weaker aspirational targets.

Moreover, Oxy has no vision and measures in place for deep decarbonisation aligned with 1.5°C-compatible trajectories in the energy sector. It lacks a Paris-aligned strategy for phasing out fossil fuel production and has not specified a termination date for said production. It also heavily relies on CCS, CCU and DAC to continue business as usual activities that exacerbate the climate crisis. Oxy's net-zero oil strategy is illustrative of this.

Oxy must align its business with 1.5°C-compatible pathways for the energy sector and cease to use DAC and DACS as smokescreens to prolong the exploitation of fossil fuels. Instead, it should reduce its emissions and store the DAC-captured carbon permanently in geological reservoirs.

Lastly, Oxy should not use DAC to offset their own or others' ongoing fossil fuel emissions or, even worse, to camouflage increased emissions from EOR. Important note on that is that even if Oxy were to successfully build 135 DAC plants by 2030 and decide to offset its fossil fuel emissions with DAC, it could balance out at most 22% of its total scope 1, 2 and 3 2022 emissions.

Oxy and purchasers of Oxy's DAC units should beware of the risk that Oxy is engaging or may engage in the future in double counting by both selling DAC units, and using them for their own climate targets. Oxy's lack of clarity and transparency on which units will be used for what purpose could provide a solid base for greenwashing complaints, and perhaps even legal action - especially if and when STRATOS comes online and a lot of the ambiguity around its functioning and where the carbon ends up is dispelled. Investing in expensive unproven technologies and expanded oil production could leave investors and the taxpayer as stranded as the costly assets in which the company is recklessly investing.

Instead of trying to recapture the emissions after them have been emitted, Oxy's climate strategy should rely on pollution prevention. The company should set robust absolute emissions reductions targets for 2035, 2040 and 2050 for its scope 1,2 and 3 emissions, take steps to phase out fossil fuel production and truly align its investments with the Paris Agreement 1.5°C target.

Appendix

Occidental Petroleum's reported emissions (based on Oxy's 2023 climate report, p 49)

GHG emission summary	2022	2021	2020	2019
TOTAL OXY	MMTCO$_2$e			
Scope 1 (GHG emissions)	17.6	18.5	19.02	21.62
Scope 2 (GHG emissions)	4.9	4.84	4.81	5.91
Total Operational GHG Emissions (Scope 1+2)	***22.5***	***23.34***	***23.83***	***27.53***
Total scope 1+2 plus Oil and gas (Scope 3) - operated basis	**239.5**	**234.34**	**249.83**	**286.53**
OXY OIL AND GAS	MMTCO$_2$e			
Scope 1 (GHG emissions)	11.35	13.08	12.91	15.41
Scope 2 (GHG emissions)	3.2	3.17	3.16	4.01
Oil and gas Operational GHG Emissions (Scope 1+2)	***14.55***	***16.25***	***16.07***	***19.42***
Scope 3: Transportation, Refining and Use of Sold Products - Operated Basis	217	212	226	259
Scope 3: Transportation, Refining and Use of Sold Products - Equity Basis	175	176	196	151
Flare Emissions	***1.08***	***1.81***	***1.94***	***2.32***
Methane Emissions	***1.13***	***1.91***	***2.85***	***2.73***
OXYCHEM	MMTCO$_2$e			
Scope 1 (GHG emissions)	6.25	5.41	6.1	6.21
Scope 2 (GHG emissions)	1.7	1.67	1.64	1.89
Oil and gas Operational GHG Emissions (Scope 1+2)	***7.95***	***7.08***	***7.74***	***8.1***
Methane Emissions	***0.005***	***0.005***	***0.005***	***0.006***
OTHER OPERATIONS	MMTCO$_2$e			
Scope 1 (GHG emissions)	0.003	0.003	0.004	0.007
Scope 2 (GHG emissions)	0	0.007	0.007	0.006
Other operations GHG emissions (Scope 1+2)	***0.003***	***0.01***	***0.011***	***0.013***

CARBON MARKET WATCH

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