



THE CARLYLE GROUP'S

**HIDDEN
CLIMATE
IMPACT:**

**EXPOSING A
DECADE OF FOSSIL
FUEL INVESTMENTS**

PRIVATE EQUITY
CLIMATE RISKS

APRIL 2023

Carlyle's carbon footprint is massive and growing

Carlyle Emissions Surpass a Quarter Billion Metric Tons

CARLYLE'S FOSSIL VS. RENEWABLE TOTAL GENERATION FROM 2011-2021 (MWH)

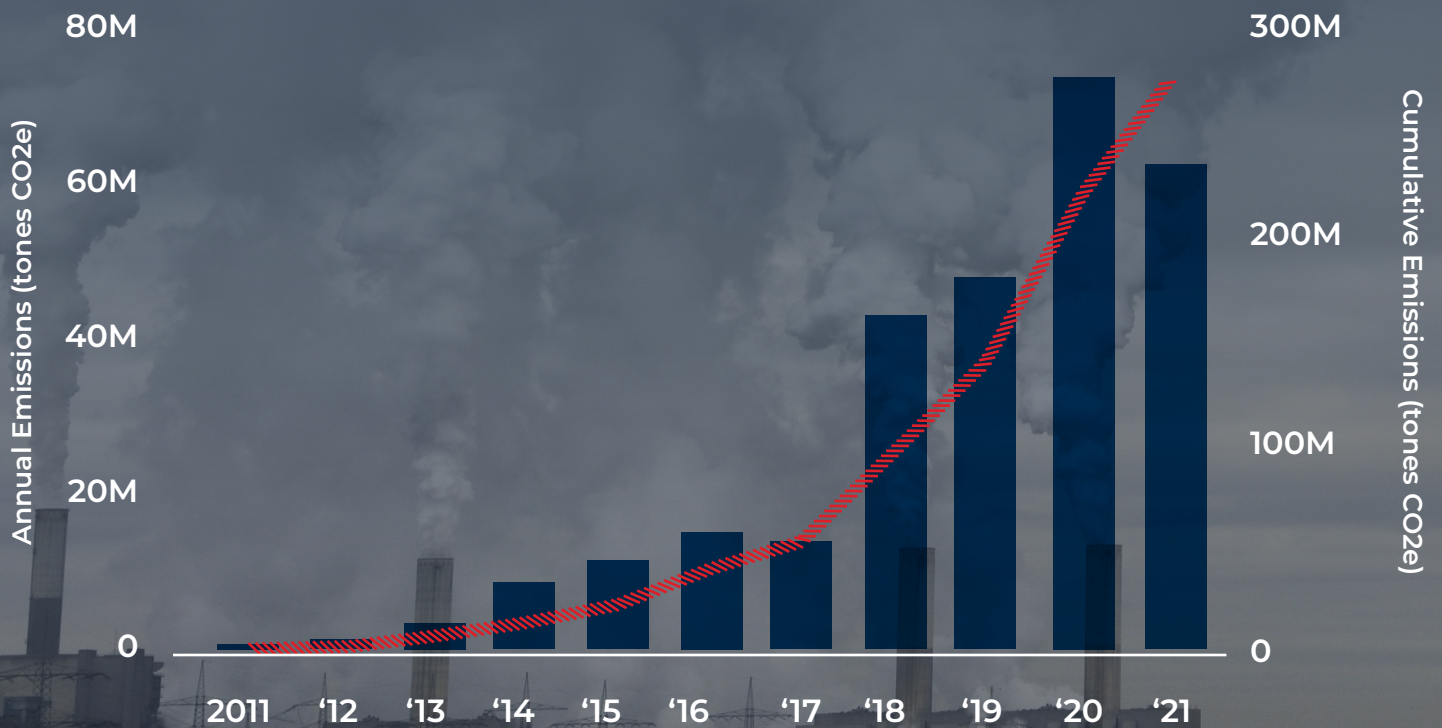
145,856,086

15,215,371

Fossil

Renewable

CARLYLE'S ESTIMATED COMPREHENSIVE FOSSIL EMISSIONS (METRIC TONS CO2e) BY YEAR, 2011-2021



ABOUT

April 2023

This report is part of the Private Equity Climate Risks project, an initiative centered on investigating the role of the private equity industry in the climate crisis. The report includes analysis of a dataset of private equity ownership of fossil fuel companies and assets developed jointly by researchers from Americans for Financial Reform Education Fund, Global Energy Monitor, and the Private Equity Stakeholder Project. More about the Private Equity Climate Risks project at www.peclimaterisks.org.

About Americans for Financial Reform Education Fund

Americans for Financial Reform Education Fund (AFREF) is a nonpartisan, nonprofit coalition of more than 200 civil rights, community-based, consumer, labor, business, investor, faith-based and civic groups, along with individual experts. Our mission is to fight to create a financial system that deconstructs systemic racism and inequality and promotes a just and sustainable economy. Follow AFREF at www.ourfinancialsecurity.org and on Twitter @RealBankReform.



About Global Energy Monitor

Global Energy Monitor (GEM) develops and shares information in support of the worldwide movement for clean energy. By studying the evolving international energy landscape, creating databases, reports, and interactive tools that enhance understanding, GEM seeks to build an open guide to the world's energy system. Users of GEM's data and reports include the International Energy Agency, United Nations Environment Programme, the World Bank, and the Bloomberg Global Coal Countdown. Follow GEM at www.globalenergymonitor.org and on Twitter @GlobalEnergyMon.



About the Private Equity Stakeholder Project

The Private Equity Stakeholder Project (PESP) is a nonprofit organization with a mission to identify, engage, and connect stakeholders affected by private equity with the goal of engaging investors and empowering communities, working families, and others impacted by private equity investments. Follow PESP at www.pestakeholder.org and on Twitter @PEstakeholder.



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EXECUTIVE SUMMARY

The Carlyle Group (Carlyle) stands out among large diversified private equity firms as having one of the largest energy portfolios, with most of it devoted to fossil fuels. Carlyle's lopsided energy portfolio has approximately \$22.4 billion in carbon-based energy,¹ and \$1.4 billion (less than 1 percent of assets under management) committed to renewable and sustainable energy companies.² In other words, for every dollar it invested in renewable energy sources, Carlyle invested \$16 in fossil fuels.³

Exploiting regulatory exemptions and loopholes, private equity firms like Carlyle have become major greenhouse gas polluters, far away from public scrutiny and with minimal regulatory oversight. Private equity firms stand ready to swoop in and acquire polluting assets sold by publicly-listed companies under public and investor pressure to cut emissions from their operations. Furthermore, large institutional investors such as university endowments, philanthropic foundations, and public pension funds that have set ambitious decarbonization goals to mitigate climate risks in their portfolios are still heavily invested in private equity firms financing polluting assets.

Operating in the most opaque corners of the market, private equity firms have become a significant source of capital for companies engaged

in the exploration, extraction, transportation, storage, processing and burning of oil, coal, and natural gas.

Energy investments did some heavy lifting for Carlyle's profits in 2022, generating around half of the firm's overall net income, mainly from over \$660 million in investment income from NGP Energy, an oil and gas subsidiary.⁴

This study pierces through the private equity veil of secrecy and finds that Carlyle invested billions of dollars in fossil fuel assets which have dumped at least 277 million metric tons of CO₂ and other greenhouse gases into the atmosphere from 2011 to 2021, contributing to the global climate crisis, and harming low-income communities and communities of color on a disproportionate basis.

Key findings over the ten-year period include:

- From 2011 to 2021, Carlyle has invested in 91 energy companies owning 972 energy-related assets. Of those totals, 90 percent of the companies (82 companies) and 90 percent of the assets (872 assets) were fossil fuel investments. Renewable energy only accounted for a fraction of energy investments.

- Carlyle's fossil fuel investments across all energy sectors emitted an estimated 277 million metric tons of carbon dioxide equivalent (CO₂e)—a measure that includes methane emissions and other powerful global-warming gasses—from 2011 to 2021. It would take 4.6 billion newly planted trees ten years to remove that much carbon.⁵
- Carlyle's fossil fuel emissions increased at an average annual growth rate of 95 percent per year between 2011 and 2021.
- Carlyle's electricity generation is significantly dirtier than the US national production. Carlyle produced roughly ten times more electricity from fossil-fuels burning plants (146 megawatt-hours) than from renewable sources (15 megawatt-hours) from 2011 to 2021. During this same period, the US as a whole produced only four times more electricity from fossil fuels than from renewable sources.⁶
- Carlyle is currently a major owner of utility-scale electric power plants in the United States (US), with 11,240 megawatts (MW) of total capacity from a fleet of 17 natural gas plants (9,874 MW); two oil plants (42 MW); 66 solar facilities (712 MW); and six wind facilities (612 MW). Its natural gas fleet makes

Carlyle one of the largest owners of gas-fired power capacity in the US, rivaling giants like Berkshire Hathaway Energy, NRG Energy, and the Tennessee Valley Authority.

- Pollution from Carlyle's current fossil fuel-burning power plants are emitted overwhelmingly in communities where low-income residents and/or residents of color live in higher concentrations than the respective state averages.
- Close to half (47 percent) of Carlyle's fossil fuel power plants have a record of environmental violations under its ownership, including facilities with repeated violations of the Clean Water Act, the Resource Conservation and Recovery Act, and the Clean Air Act.
- Between 2011 and 2021, Carlyle-backed companies produced close to 1,300 million barrels of oil equivalent (mmbOE) worth of oil and gas from upstream assets—mostly through oil and gas subsidiary NGP Energy. Of the total production, 65 percent was oil-based, while the remaining 35 percent was gas-based. This total production is equivalent to one-fifth of the yearly oil consumption in the US.



INTRODUCTION

The international community's main strategy in response to the existential threat of climate change is to limit average global temperature increases to below 1.5 degrees Celsius by progressively reducing greenhouse gasses (GHG) to achieve net zero emissions by 2050.⁷ Failure to meet these targets will hurt communities across every continent, but especially those already harmed by the legacies of colonialism, racism, extractive industries, and dispossession to the most acute effects of global climate change.⁸

As the world transitions to renewable energy sources and reduces GHG emissions under mounting public and regulatory pressure, more and more companies are establishing and implementing carbon reduction strategies.

The US private equity industry has emerged as a particular obstacle to achieving this objective. Private equity firms have been a significant source of capital for the energy industry, investing at least \$1.1 trillion globally since 2010,⁹ most of which has been funneled into acquiring substantial ownership of fossil fuel assets across the energy sector, from the exploration and extraction of oil, gas, and coal to the generation of the electricity powering our homes.¹⁰

The Carlyle Group (Carlyle) stands out among private equity managers as having one of the largest energy portfolios, with most of it devoted to fossil fuels.¹¹ Carlyle has reported that it intends to continue investing in fossil fuels, locking in decades more of fossil fuel pollution,¹² even as scientists and global authorities urge a rapid transition to green energy.

Carlyle's energy portfolio is lopsided, making 94 percent of its energy investments in fossil fuels. As of the end of 2022, Carlyle had \$22.4 billion invested in carbon-based energy, and a self-reported \$1.4 billion, less than 1 percent of its assets under management (AUM), committed to renewable and sustainable energy companies.¹³ Put differently, for every dollar

Carlyle invests in renewable energy sources, it puts \$16 in fossil fuels.

In addition to outright acquiring fossil fuel companies, Carlyle also provides financing for carbon-intensive activities by other firms it claims not to control. In one such company, NGP Energy Capital Management (NGP or also called "Natural Gas Partners"), Carlyle has held a majority stake since 2012, according to an NGP filing with the Securities and Exchange Commission (SEC).¹⁴ Carlyle has over a billion dollars invested in NGP as of the end of 2022.¹⁵ In return, Carlyle receives "income equal to 55.0 percent of the management fee-related revenues of NGP Management" and other income streams from NGP, according to Carlyle's SEC filings.¹⁶ In fact, around half of Carlyle's profits in 2022 came from its fossil fuel-heavy investment in NGP, over \$660 million.¹⁷

Carlyle has recently been scrutinized for its lack of transparency around emissions from current fossil fuel company investments.¹⁸ This report examines the impact of Carlyle's investments across its energy investments from 2011 to 2021. A ten-year study period helps capture companies that moved in and out of Carlyle's ownership and provides a more holistic view of the impact of its business practices, as the consequences of GHG emissions and environmental degradation persist for communities even after an asset has left Carlyle's portfolio.

Due to the industry's intrinsic opacity, the report's findings likely understate the dirty footprint of Carlyle's portfolio. To overcome this lack of transparency, the team of authors on this report complemented the limited publicly available information disclosed by Carlyle about its holdings with other public sources, private data sources that track private equity deal activity, and with media coverage.¹⁹ Carlyle's investments include a variety of strategies including leveraged buyouts, majority or minority stake, credit, or joint ventures. To measure



the environmental impacts, this report estimates emissions for the fossil fuel portfolio companies whose activities Carlyle or NGP's investments have enabled through various investment strategies. Over the last year, the team of authors sought to verify the accuracy of the information in this report, including communicating directly with Carlyle and NGP for confirmation of investment and holding periods.

This report will first place Carlyle within the larger context of the private equity industry's problematic practices and its role in propelling the climate crisis. The report then spotlights Carlyle's recent net zero emissions announcement and offers a critical examination through the lens of corporate greenwashing. The report then presents the main findings from the analysis of Carlyle's energy holdings between 2011 and 2021, showing a pattern of extensive fossil fuel investments over the ten-year period, and presents environmental justice case studies of Carlyle-backed facilities. It concludes with a list of policy and investor recommendations to ensure the private equity industry improves transparency of energy investments and emissions while also accelerating mitigation efforts on transition and financial risks related to climate across investment portfolios.

Private Equity Financial Extraction Poses Additional Risks for Energy Companies

Private equity firms manage pools of money provided by wealthy individuals and institutional investors—

such as pension funds or university and foundation endowments—and combine this capital with high levels of debt to take over other companies in a wide array of industries as investment vehicles. Private equity firms are not subject to the same level of regulation and transparency as utilities or publicly traded companies. As such, the information needed to meaningfully evaluate the risks in private equity portfolios or the aggregate impact of their holdings on the environment and our communities is largely unavailable.

In addition to the secrecy, private equity firms exploit regulatory loopholes and exemptions under securities laws to generate spectacular returns for a handful of Wall Street executives while jeopardizing the financial viability of the target companies. Private equity firms frequently impose onerous fees on portfolio companies and deploy a combination of extreme cost-cutting measures, financial engineering gimmicks, and aggressive risk-taking to rapidly balloon profits, only to sell the companies again in about five years.²⁰ Meanwhile, both the debt used to finance the initial purchase, as well as “dividend recapitalizations,” which are debt-funded dividends that the owners pay to themselves, fall to the portfolio company to repay, eroding its capacity to weather rainy days. The extensive use of debt by private equity owners is associated with a ten-fold increase in the probability of bankruptcy for the portfolio company.²¹ During severe oil price disruptions of 2020 triggered by the onset of the COVID 19 pandemic, bankruptcies surged in the upstream oil and gas sector. Private

equity backed companies made up 71 percent of the sector's bankruptcy filings that year, including one backed by Carlyle.²²

Portfolio companies often struggle to operate when resources that should have been directed to capital improvements, maintenance, environmental safeguards, or decarbonization are instead siphoned off to Wall Street investors. But private equity firms layer their acquisitions, creating complex legal structures to largely shield themselves behind limited liability laws.²³ This allows them to evade responsibility for their predatory practices and the financial, environmental, and community harm that may arise from the distorted financial incentives to maximize returns in the short term.

Private equity: the only game in town for divested assets

Private equity's stealth expansion in the fossil fuel sector has become an additional, unique obstacle to achieving emissions reductions. As public, investor and regulatory pressure tightens in public markets, utilities and major public companies are increasingly migrating their fossil fuel assets to less regulated ownership. These facilities continue operating, pumping warming gasses into the atmosphere away from public scrutiny and with minimal regulatory oversight.²⁴

Selling off their highest-polluting assets—instead of discontinuing them or phasing them out—to quickly wipe out tons of CO₂ from their footprint allows the sellers to greenwash the public and peddle their “evolution as clean energy” companies or as “leader[s] in the zero-carbon transition,” as CEOs of major utilities have put it,²⁵ while their emissions are merely transferred, not removed from the system entirely.²⁶ “Yes, we finally unloaded that piece of crap in Denmark we've been trying to sell for decades,” a Shell executive wrote in an email about a refinery sold to a private equity firm, an exchange which Shell touted in a press release as “support[ing] our ambition to be a net-zero emissions energy business by 2050 or sooner.”²⁷

Private equity firms have emerged as “pollution financiers of last resort,”²⁸ acquiring divested dirty

assets. “We ask ourselves, who's going to own that stuff,” a Carlyle executive said in a webinar, adding that “by default, private equity is kind of the only game in town.”²⁹

Divestment promises are also gaining momentum in academic endowments,³⁰ philanthropic foundations,³¹ and state and local governments.³² But many of these institutional investors are still heavily invested in private equity, including in companies deep in polluting assets—like Carlyle. Table B.1 in Appendix B lists institutional investors with divestment policies and over a billion dollars invested in private equity.

Carlyle's Long History, Challenging Future

With its \$373 billion in AUM,³³ Carlyle is one of the largest alternative asset management firms and one of the oldest, having pioneered the private equity model in the 1980s along with KKR and Blackstone. Carlyle is headquartered in Washington, DC, with 29 offices around the globe and over 2,100 employees.³⁴

Carlyle's direction for the decades ahead will depend on priorities and strategies set by its leadership team, which has been tumultuous for the past several years. In February, Carlyle appointed a new Chief Executive Officer (CEO) after a “botched leadership transition,” during which two previous CEOs departed, imploding succession plans.³⁵ The *New York Times* called the clashes “Revenge of the Founders,” saying that even while the trio that co-founded the firm three decades ago seeking to anoint a new generation of leadership, “there is little to stop their founders from clawing back power.”³⁶

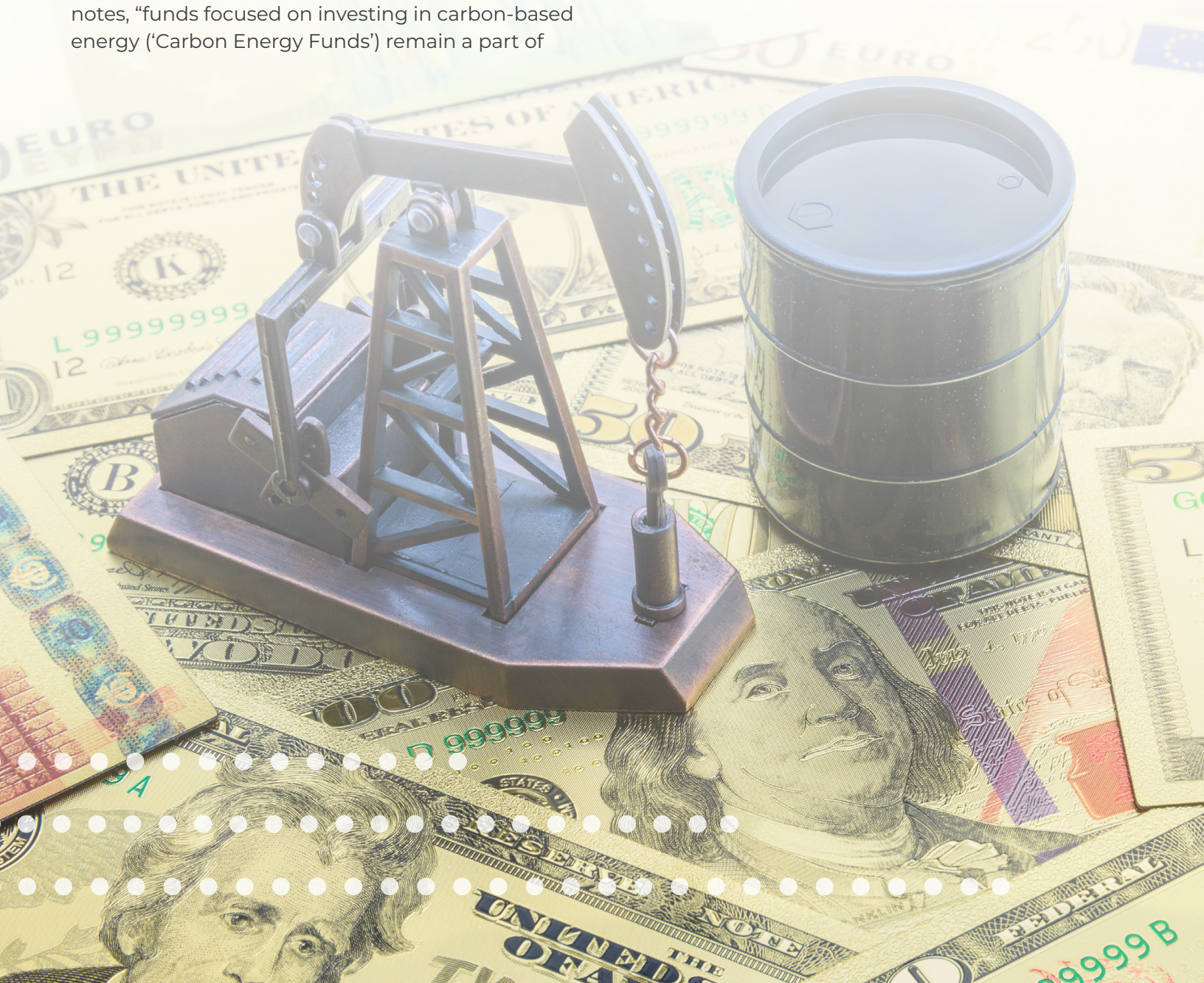
The co-founders continue to exert their influence within Carlyle, but they have also leveraged their wealth outside of the firm as well. For example, co-founder David Rubenstein is well networked including holding prestigious positions like Chairman of the Kennedy Center Board of Trustees, Chairman of the Council on Foreign Relations, Chairman of the Economic Club of Washington, DC, Chair Emeritus of the Brookings Institute, Member of the Harvard Corporation, Trustee of the University of Chicago, and Chairman of the National Gallery of Art.³⁷

As Carlyle's new CEO Harvey Schwartz takes the reins, one of his challenges will be the ability to raise money from institutional investors. The firm fell behind rivals in securing capital commitments, pulling in "just a fraction" of the funds raised by other private equity peers as 2022 drew to a close.³⁸ Carlyle is raising multiple funds this year, including prolonged fundraising for its eighth buyout fund that has missed targets and sought an extension.³⁹

Prior to Schwartz's arrival, Carlyle had asserted its commitment to continue investing in fossil fuels. Carlyle's annual report for 2022 filed with the SEC notes, "funds focused on investing in carbon-based energy ('Carbon Energy Funds') remain a part of

our business (6 percent of total AUM),"⁴⁰ or equal to around \$22 billion. The filing confirmed Carlyle's plans to continue investing in fossil fuel assets, stating that its "future investments in carbon-based energy are expected to be made primarily through our non-controlling interest in NGP in the United States and Carlyle International Energy Partners outside the United States."⁴¹

NGP is seeking commitments for two new funds, in natural resources and royalties strategies, one of which recently bought up fracking wells in the Permian basin in Texas.⁴²



RHETORIC VS REALITY: CARLYLE'S CLIMATE DOUBLE-SPEAK

Carlyle's investments in fossil fuels continue to expand even as globally, hundreds of billions of dollars are at risk from extreme weather damage, stranded assets and market disruptions as the climate crisis grows.⁴³ Failure to mitigate the impacts of climate change would create billions in losses for pension funds, according to stress tests.⁴⁴ At the same time, investment opportunities in the energy transition are growing.⁴⁵ These trends mean investors with tens of trillions of dollars increasingly consider environmental risks an important factor for their capital allocations.

The United Nations-supported Principles for Responsible Investment (PRI), one of several groups encouraging investors to use responsible investments to preserve the environment, has almost 4,000 signatories holding over \$120 trillion in AUM together.⁴⁶ Further, a recent survey of investors worldwide representing more than \$14 trillion in combined AUM finds that four out of five (80 percent) take environmental factors into account in investment decision-making and almost half (49 percent) say they would sell their investments in companies that are not demonstrating enough progress to address environmental issues.⁴⁷

This reflects the growing importance of environmental considerations for investors and market participants. However, the trend has spawned a simultaneous proliferation of corporate "greenwashing," the practice of misleading investors and the public by advertising false or meaningless claims about decarbonization or other climate goals. Greenwashing has become such a pervasive problem in the financial industry that Wall Street "is duping the American public with its pro-environment, sustainable investing practices ... greenwashing the economic system and, in the process, creating a deadly distraction [from climate change]," in the words of a former Chief Investment Officer for Sustainable Investing at BlackRock, the largest asset manager in the world.⁴⁸

Private equity wants to write its own report card

For private equity firms like Carlyle, which must regularly raise capital from investors, not having a credible energy transition plan would pose a significant risk. In its annual SEC filing, Carlyle acknowledged that as some investors steer clear of fossil fuel investments, this "could affect our ability to raise new funds focused on those asset classes, such as funds focused on conventional energy or natural resources." Carlyle's filing added that the impact would not be limited just to fundraising but could also "have a negative impact on our ability to exit certain of our energy investments, or our ability to invest capital in our conventional energy funds."⁴⁹

As such, Carlyle has made some limited overtures to investing toward a low-carbon economy. In February 2022, Carlyle laid out a "call to accelerate the transition to a net zero economy,"⁵⁰ announcing a goal of net zero emissions "across investments" by 2050 and "immediate action" to "drive real emissions reductions within our portfolio companies."⁵¹ Kewsong Lee, Carlyle's CEO at the time, stated that investors like private equity firms "need to be at the vanguard of helping companies decarbonize across all sectors of the economy."⁵²

Although Carlyle's net-zero announcement stood out among private equity peers reluctant to make such pledges, it lacks specifics, does not commit to transparency around Carlyle's fossil fuel assets or emissions, and does not include its full portfolio of investments. Instead, the announcement gestured toward "Paris-aligned" investments while covering only part of Carlyle's investment portfolio and failing to detail how emissions reductions will be achieved.⁵³

To help stakeholders assess emissions reduction targets set by oil and gas companies, Carbon Tracker Initiative (CTI) has developed three "Hallmarks of Paris Compliance," which a target should meet in order to be considered Paris-aligned. These criteria

state that targets should cover all direct and indirect emissions (Scopes 1, 2 and 3), must cover the full suite of a company's assets (fully- and minority-owned), and should include an absolute basis to emissions targets, including interim targets set on an absolute basis.⁵⁴

Despite the relatively limited information Carlyle has disclosed about its targets, they fail to meet at least two of CTI's Hallmarks. Firstly, the targets omit Scope 3 emissions from their portfolio companies, which is particularly problematic for oil and gas companies as 85 percent of their emissions are the result of the end use of their products, and so fall under the category of Scope 3.⁵⁵ Failure to account for the Scope 3 emissions of portfolio companies represents an insufficient analysis of their climate impacts and can render a net zero announcement moot.

For example, a study of 25 major global companies with "net zero" and "carbon neutral" pledges finds that the companies committed to reducing emissions only by 40 percent, on average, once researchers accounted for the full value chain emissions.⁵⁶ Secondly, Carlyle's emissions target does not cover the full suite of its revenue-generating assets, as they exclude those held on a minority equity basis. Lastly, Carlyle does not disclose whether it intends to reduce emissions on an absolute or intensity basis. For its pledge to cut emissions to be credible, Carlyle will need to chart the course to net zero by 2050 with absolute reductions set on an interim basis. For example, the global economy will need to cut emissions nearly half by 2030 to be in alignment with the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) recommendations to limit global warming to 1.5 degrees Celsius.⁵⁷ Credible targets for corporations must be similarly ambitious as outlined by the Science-Based Targets Initiative (SBTI), though there will be variability across sectors,⁵⁸ and financial institutions should use the Glasgow Financial Alliance for Net Zero (GFANZ) methodology to determine the appropriate 2030 interim targets for their portfolios.⁵⁹

Additionally, net zero by 2050 goals that include over-reliance on negative emissions technologies

as a near-term strategy to address climate change have been deemed inadequate.⁶⁰ As the former chair of the IPCC recently stated, net zero "helps perpetuate a belief in technological salvation and diminishes the sense of urgency surrounding the need to curb emissions now."⁶¹ According to the IPCC, every scenario required to avoid some of the most devastating aspects of climate change would require steep emissions reductions now using largely available technologies followed by negative emissions toward mid-century.⁶²

In its "Impact Report" Carlyle acknowledges the selective and possibly temporary nature of its climate commitments, noting in the fine print that the company makes "no assurance that Carlyle's ESG policies and procedures as described in this report ... will continue; such policies and procedures could change, even materially, or may not be applied to a particular investment."⁶³

It appears Carlyle will self-report its progress toward its self-selected benchmarks. Even Carlyle's own Global Head of Impact observed that "[a] really hot topic of conversation in the industry is greenwashing, which happens when companies or investors *write their own report card* [emphasis added]." Yet Carlyle itself has chosen selective self-reporting—in other words, Carlyle plans to "write [its] own report card."

Understating Impacts of the Fossil Fuel Portfolio

For the past two years, Carlyle has published a Task Force on Climate-Related Financial Disclosures (TCFD) report, a framework recommended by multilateral organizations⁶⁵ to "enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system's exposures to climate-related risks."⁶⁶ Although the TCFD framework is useful, it lacks a Scope 3 emissions requirement, allowing asset managers to exclude major sources of emissions within their portfolio.⁶⁷

Carlyle's 2021 TCFD report excludes investments through its majority-owned subsidiary NGP.⁶⁸ Considering that NGP generated around half of



Carlyle's 2022 profits,⁶⁹ and generates substantial emissions through its oil and gas portfolio companies, excluding NGP from the TCFD report means the report downplays the firm's potential climate-related risks and impacts. The *Associated Press* reported on Carlyle's omission of NGP from the TCFD report, quoting a professor of energy ethics who said Carlyle displayed "slippery ethics" by talking about emissions reductions while "profitability of its fossil fuel investments was the bottom line."⁷⁰

In an op-ed in early 2022, then-CEO Lee said Carlyle intends to continue investing in fossil fuel assets while setting near-term goals for energy companies and working on the energy transition.⁷¹ Brittany Berliner, a Carlyle spokesperson, has also stated that Carlyle will keep investing in fossil fuel companies to promote "real emissions reductions within portfolio companies over the long term."⁷² The TCFD report states that Carlyle has collected carbon footprint

data for 100 percent of the majority-owned portfolio companies, but the data is not disclosed. It is difficult to know how Carlyle might make progress on emissions reductions without full disclosures across its whole energy portfolio. This report attempts to provide an accounting of Carlyle's emissions.

It is hard to see how Carlyle can become a climate leader among its peers if it continues to expand its already substantial fossil fuel exposure while obscuring the full extent of its investments and emissions. The next section examines Carlyle's energy-related investments and attendant emissions between the years 2011 and 2021, revealing a clear pattern of growth in the size and scope of its fossil fuel portfolio in this period.



CARLYLE EMISSIONS SURPASS A QUARTER BILLION METRIC TONS

We estimate that between 2011 and 2021, Carlyle and NGP made majority or minority equity, joint venture and/or credit investments in 91 energy portfolio companies, holding 972 energy-related assets in 19 countries on every inhabited continent. These companies and assets were involved in oil, gas, coal, biomass, solar, wind, and hydroelectric power generation (downstream sector); oil, gas, coal, and biomass transportation, storage, and processing (midstream sector); and oil and gas extraction (upstream sector), all of which are examined in the following section. A full description of the methodology used to make the estimate contained in this report appears in Appendix A.

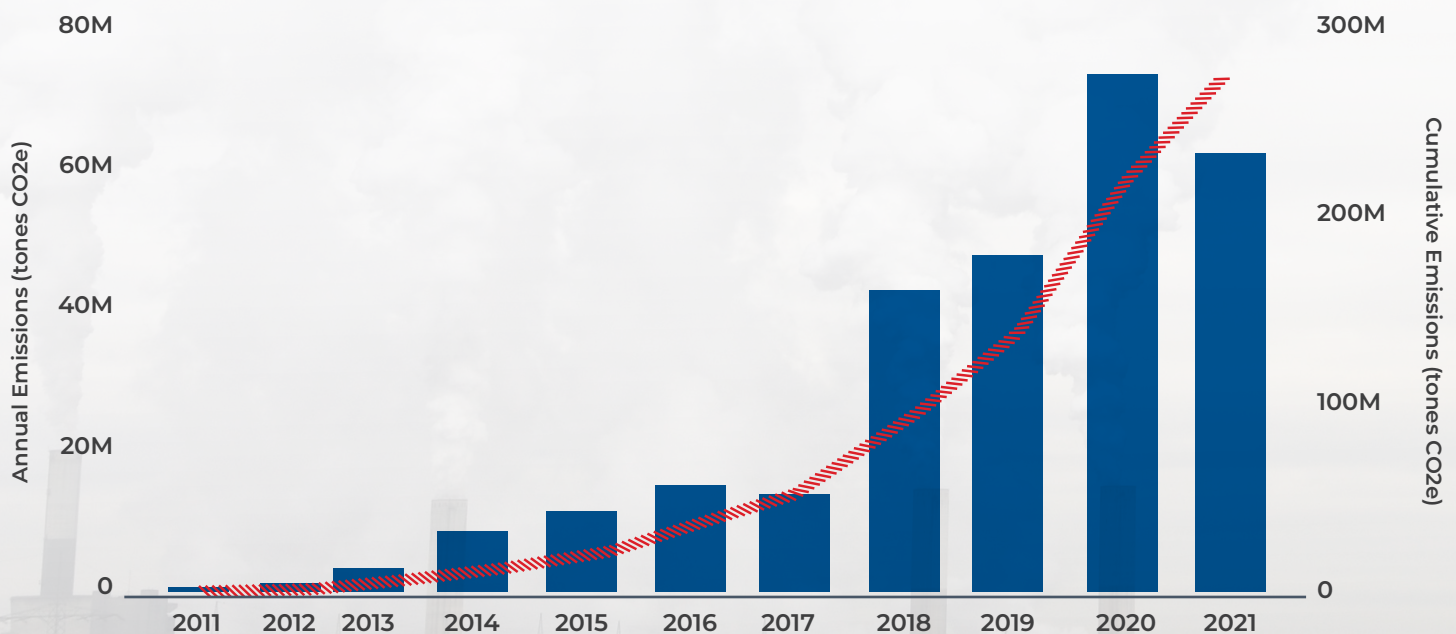
An analysis of Carlyle's full portfolio of holdings reveals that the firm is one of the largest owners of gas-fired power capacity in the US, controlling over 11,000 MW of capacity across all energy generation types and producing approximately 36.6 million

megawatt-hours (MWh) of electricity in 2021—rivaling Berkshire Hathaway Energy, NRG Energy, and the Tennessee Valley Authority.

In addition, in the upstream sector, Carlyle and NGP's carbon footprint is massive and growing, despite calls by the International Energy Agency,⁷³ Carbon Tracker Initiative,⁷⁴ and others to transition away from upstream investments as our planet moves towards a clean energy future.

Over the past decade, we estimate that Carlyle's comprehensive annual GHG emissions—including emissions from upstream, midstream, and downstream sources—had a compound annual growth rate of 95 percent per year (Figure 1),⁷⁵ totaling an estimated 277 million metric tons of CO₂e. It would take 4.6 billion newly planted trees ten years to remove that much carbon.⁷⁶

FIGURE 1
CARLYLE'S ESTIMATED COMPREHENSIVE FOSSIL EMISSIONS (METRIC TONS CO₂e) BY YEAR, 2011-2021.



Source: Private Equity Climate Risks consortium Carlyle Group 2011-2021 Fossil Fuel Assets dataset.

Figure 1 depicts the total estimated fossil-fuel related emissions of Carlyle portfolio companies over the period of 2011–2021. This includes combined emissions from upstream, midstream, and downstream sources with care taken to avoid double counting emissions (see Appendix A for more detail). Peak emissions were recorded for the year 2020, with 73 million metric tons of CO₂e. The upstream sector accounted for 255 million metric tons of CO₂e, or 92 percent of the total estimated 277 million metric tons of CO₂e. Notably, 85 percent of this CO₂e was emitted after the world reached the Paris Agreement at the end of 2016.

Like many of its power-generating peers, Carlyle’s fossil fuel portfolio overall greatly outstripped its renewable portfolio, with only 10 percent of companies and 10 percent of their assets in the renewable energy category, as demonstrated in the following analysis.

Downstream Fossil Fuels Dramatically Outweigh Renewables

Capacity

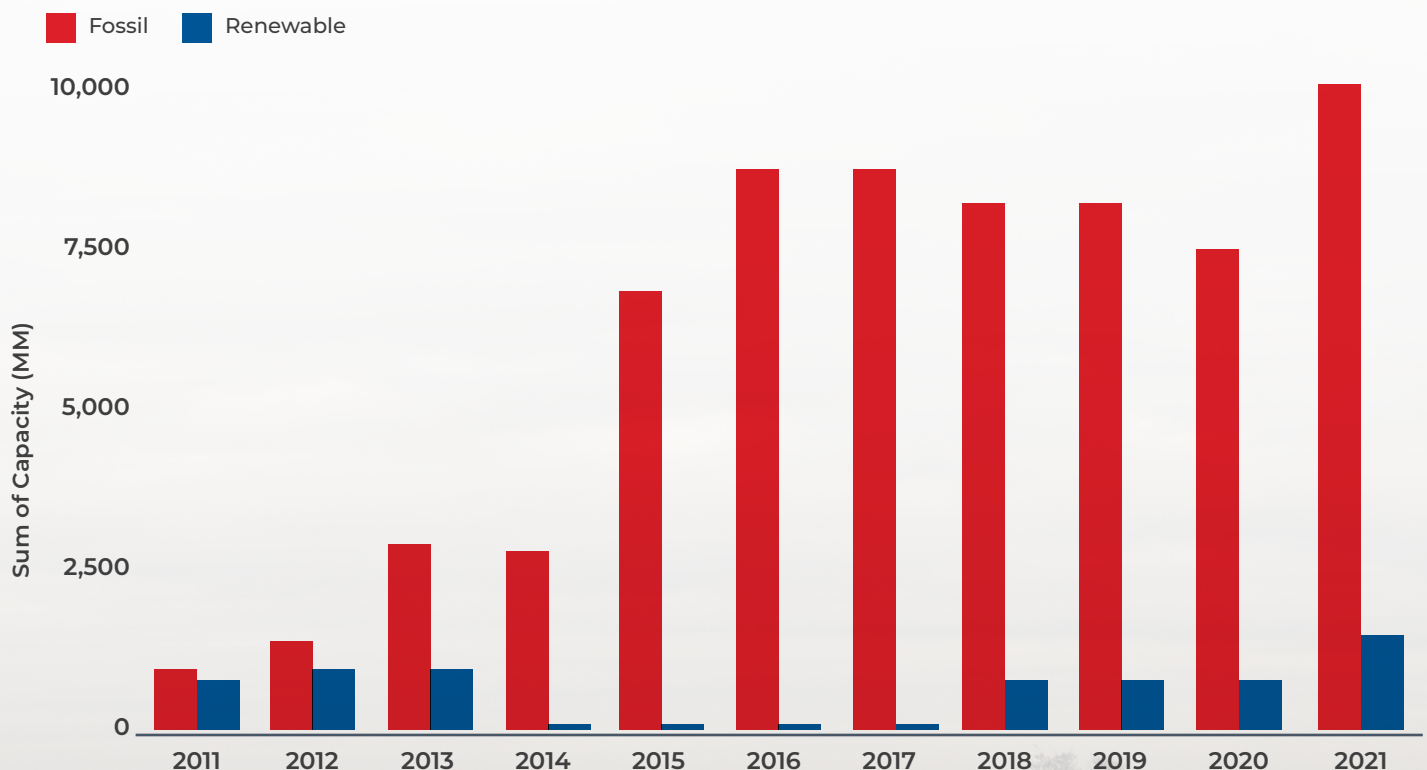
Over the last decade, Carlyle’s capacity figures for fossil plants dwarfed renewable plants (Figure 2).⁷⁷

The sustained growth of gas capacity in the portfolio, especially since 2015, runs counter to the global consensus expressed in the Paris Agreement that fossil power must be phased out in order to limit catastrophic changes to Earth’s climate system.

Carlyle currently owns just over 1,300 MW of renewable generation capacity across solar, wind, and hydro categories. Meanwhile, Carlyle’s fossil fuel generation capacity maxed out for the decade at just under 10,000 MW in 2021—all of which was gas-powered. For perspective on these capacity figures, Carlyle’s owned gas capacity in 2021 is roughly equivalent to the gas capacity owned by NRG Energy,⁷⁹ a major US-based electric utility responsible for serving over five million customers.⁸⁰

As seen in Figure 2 below, renewable sources have consistently represented a small fraction of Carlyle’s power capacity across the decade studied, with only modest growth since 2018. This pattern suggests that for Carlyle to transition its portfolio in line with a 1.5 degree Celsius pathway would require a major pivot in its investment strategy.

FIGURE 2
CARLYLE’S FOSSIL AND RENEWABLE POWER CAPACITY (MW), 2011–2021.



Source: Private Equity Climate Risks consortium Carlyle Group 2011–2021 Fossil Fuel Assets dataset.

Generation

Whereas “capacity” describes the size and theoretical maximum amount of output of a power plant, “generation” describes the actual amount of electricity produced over a set period of time. The total energy produced across Carlyle’s fossil and renewable power plant sources between 2011 and 2021 is 161 million MWh, of which 91 percent was from fossil fuels (Figure 3).

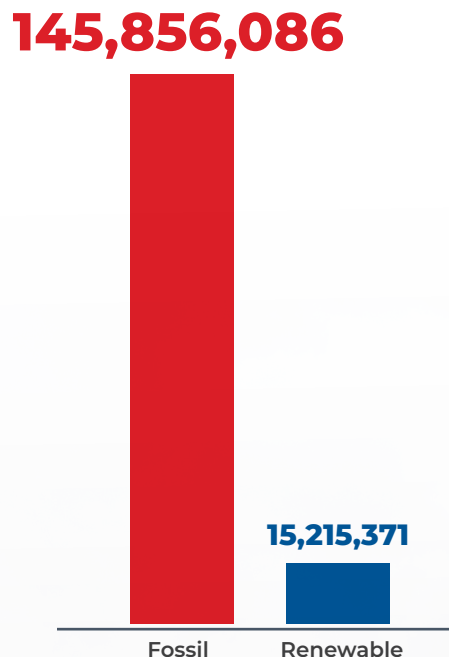
When compared to US national averages, these numbers show that Carlyle’s power-generating portfolio leans more heavily towards fossil fuels. According to the US Energy Information Administration, in 2021, 61 percent of US utility-scale electricity generation was produced from fossil fuels (coal, natural gas, and petroleum), 19 percent was from nuclear energy, and 20 percent was from renewable energy sources.⁸¹

Emissions

Gas-powered power plants are responsible for most of Carlyle’s downstream emissions over the last decade (Figure 4). Aggregated emissions peaked in 2021 with roughly 14 million metric tons of CO₂e

FIGURE 3

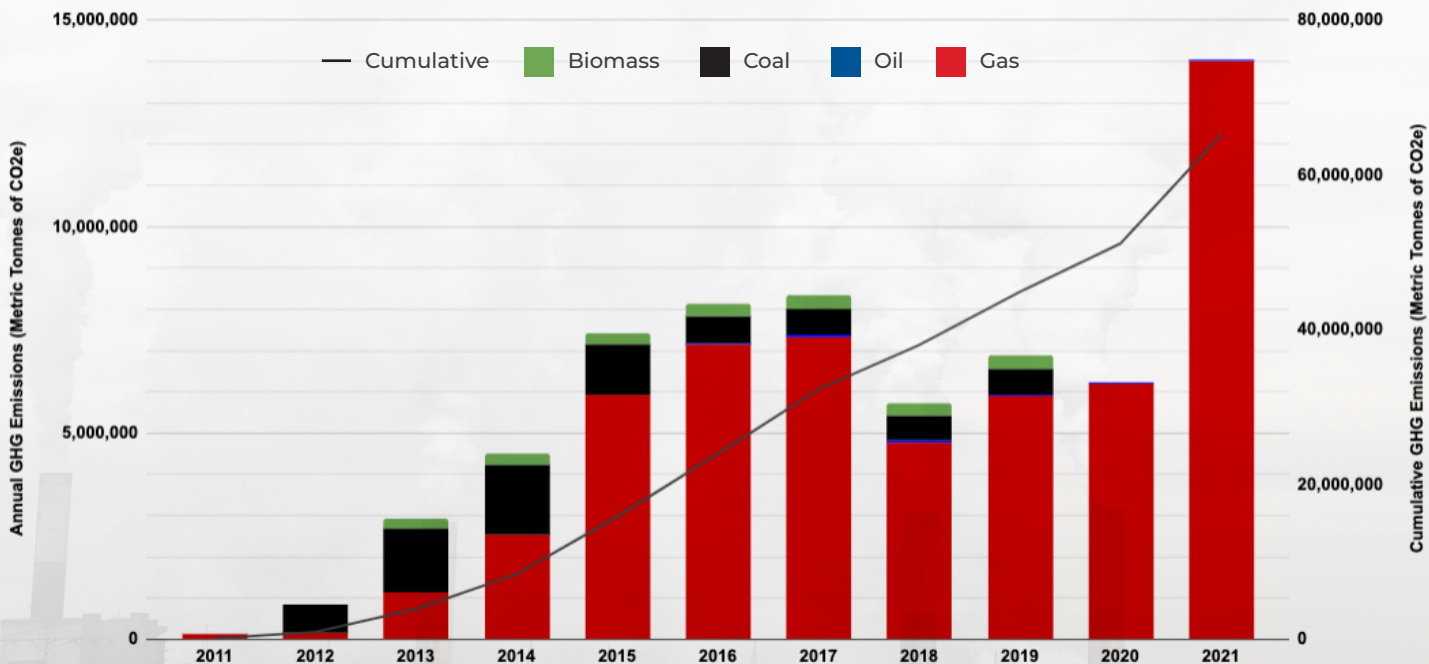
CARLYLE’S FOSSIL VS. RENEWABLE TOTAL GENERATION FROM 2011–2021 (MWH).



Source: Private Equity Climate Risks consortium Carlyle Group 2011–2021 Fossil Fuel Assets dataset. 2011–2021 Fossil Fuel Assets dataset.

FIGURE 4

CARLYLE’S ESTIMATED DOWNSTREAM FOSSIL EMISSIONS BY YEAR (METRIC TONS CO₂E), 2011–2021.



Source: Private Equity Climate Risks consortium Carlyle Group 2011–2021 Fossil Fuel Assets dataset.



emitted in that year alone. Together, downstream fossil fuel emissions from the Carlyle-owned fleet from 2011 to 2021 totaled 63 million metric tons of CO₂e, 84 percent of which came from gas plants. The total emissions are roughly equivalent to operating 1.3 million average-sized gasoline-powered cars over ten years.⁸²

Environmental Health Injustice: An Unequal Burden

In the US, where the entirety of Carlyle's downstream fossil portfolio is located, the environmental health impacts of downstream fossil fuel pollution fall heavily on communities of color and low-income communities, particularly Black and Latino communities.

On average, 56 percent of people living in neighborhoods with toxic release inventory facilities are people of color, compared to 30 percent elsewhere.⁸³ At national, state, and county levels, non-white residents had a 1.28 times higher burden of exposure to particulate matter emissions than white residents, and Black residents specifically had a burden 54 percent greater than residents overall.⁸⁴ Similarly, Latino residents are 65 percent more likely to live in counties with unhealthy levels of particulate matter pollution and 51 percent more likely than non-Latino whites to live in counties with unhealthy ozone levels.⁸⁵

Further studies find that Black residents are 75 percent more likely than white residents to live in

“fence-line” communities, meaning “areas near commercial facilities that produce noise, odor, traffic, or emissions that directly affect the population.”⁸⁶ Black children in the US are almost twice as likely as their white counterparts to have asthma, and the death rate for Black children with asthma is ten times higher than for white children with the same condition. Latino children are twice as likely as white children to visit an emergency room for, or die from, asthma, and Latinos are three times more likely to die from asthma than other racial or ethnic groups.⁸⁷ Recent reports detail how these inequities stem from and persist due to a history of “racist practices such as redlining and housing, discrimination, longstanding social and racial inequalities, colonization, [and] Indigenous genocide and removal,” among other factors.⁸⁸ Corporate irresponsibility, enabled by secrecy and political complicity, represents an additional, critical threat, and private equity's tactics can heighten environmental and worker safety risks and lack of accountability.

Concerning patterns emerge when Carlyle's US downstream fossil fuel investments are viewed in this context. The environmental and public health impacts of emissions from Carlyle-owned facilities are unequally distributed. Out of the approximately 19 downstream US assets currently affiliated with Carlyle or NGP, at least 16 facilities, or about 84 percent, are located in areas with higher percentages of low-income residents and/or residents of color than the statewide averages where the facility is located.

TABLE 1

ENVIRONMENTAL JUSTICE STATISTICS FOR CARLYLE'S US DOWNSTREAM FACILITIES.

At least 18 of Carlyle's 19 facilities, or 95 percent, raise at least one EPA or environmental justice concern (see Appendix A for definitions).

	Number of Facilities	Percent of Facilities
Total Carlyle-backed Facilities	19	100%
At Least One EPA/EJ Concern	18	95%
At Least One EJ Concern	16	84%
Disproportionate percent Low-Income Residents	14	74%
EPA Violation(s)	9	47%
Disproportionate percent Residents of Color	6	32%

Source: Authors's analysis of US Environmental Protection Agency data.⁹⁰

At least four of these Carlyle-affiliated downstream assets are located in areas where their immediate impact will fall disproportionately on both low-income residents and residents of color. In other words, according to Census data, these facilities are located in areas where the percentages of both low-income residents and residents of color within a five-mile radius are higher than the average percentages of low-income residents and residents of color in the state as a whole. In some instances, the demographic disparities between the facility area and the state average are 20 to even 26 percentage points higher, as in the case of Carlyle-backed facilities in Connecticut, Massachusetts, and Texas. Overall, at least six downstream facilities are poised to disproportionately impact residents of color, and 14—nearly three-fourths (74 percent) of Carlyle's downstream facilities—on low-income residents.

In addition, roughly half of these downstream assets have a record of environmental violations during Carlyle's involvement, according to the EPA's Enforcement and Compliance History Online (ECHO) database.⁸⁹

All 19 of Carlyle's current downstream US assets are operated under the umbrella of Cogentrix Energy Management.⁹¹ Cogentrix's website states that "Cogentrix is owned by funds managed by The

Carlyle Group, one of the world's largest alternative asset management firms, and serves as Carlyle's in-house power asset management platform" since 2012.⁹² Cogentrix describes its business by saying that "Cogentrix and its predecessors have been directly involved in the development, ownership, operations and management of coal-fired, natural gas-fired and solar power assets delivering a combined generating capacity in excess of 10 GW."⁹³ Seventeen of Carlyle's Cogentrix assets are gas-fired power generators, with an additional two oil-powered generators.⁹⁴

Two of the gas plants, 500-MW Elgin Energy Center and 402-MW Rocky Road power plants in Illinois, filed for bankruptcy protection on March 31, 2023, following \$39 million in non-performance penalties levied by the grid operator following severe winter storms. The plants had been struggling financially, and executives said that with the penalties, the "debt load is simply no longer workable."⁹⁵

The following examples within the Carlyle/Cogentrix portfolio demonstrate a pattern of environmental non-compliance and disproportionate impacts on low-income residents and people of color.



Essential Power Massachusetts LLC (2016–Present)

Carlyle acquired an East Coast portfolio of gas and oil generators (the “Essential Power Portfolio”) in February 2016.⁹⁶ Carlyle currently retains these assets, including its 234-MW Essential Power Massachusetts LLC oil and gas generator. Since 2019, the facility has repeatedly been out of compliance with at least one or more federal environmental programs, and three informal enforcement actions have been issued to the facility since Carlyle’s takeover. From October 2019 to September 2021—8 consecutive quarters—the facility was repeatedly out of compliance with the Clean Water Act (CWA) for failure to meet pH standards for gross effluent. From January 2021 through present, as of newest available data, the facility has repeatedly been out of compliance with the Resource Conservation and Recovery Act (RCRA) mandates for generators in pre-transport. Further, from April 2022 to present, the facility has been out of compliance with the Clean Air Act (CAA), violating standards for nitrogen oxide release.⁹⁷

The variety and persistence of environmental non-compliance under Carlyle’s tenure are particularly concerning given the power station’s location.

Approximately 230,000 residents live within a five-mile radius of the facility, with a disproportionately high percentage of residents of color and low-income residents within this impact zone. Half of the residents living within five miles of the facility are people of color, even though residents of color represent only 29 percent of Massachusetts’ population overall. Likewise, 38 percent of residents within the Massachusetts facility’s impact zone are considered low-income, compared to approximately 22 percent in the state as a whole. EPA environmental justice metrics further designate the area surrounding the facility to be medically underserved and with markers of respiratory health disparity, with the immediate area in the 90th to 95th percentile for asthma precedence among adults aged 18 and over.

Bridgeport Energy Project (2019–Present)

On March 29, 2019, Carlyle acquired an additional portfolio of Cogentrix Energy Management assets (the “Emera New England Gas-Fired Generation Facilities”), including the 520-MW gas-powered Bridgeport Energy Project, located in Connecticut.

Equally concerning patterns of environmental impact disparity are visible for this facility. At least

five quarters of noncompliance with the Clean Water Act have occurred at the facility within the past three years, with the facility failing to meet requirements for effluent water temperature and pH. The facility was also missing or failed to submit no less than five discharge management reports in October 2022, and has received at least two enforcement actions under Carlyle's ownership.⁹⁸

Approximately 250,000 residents live within a five-mile radius of the Bridgeport power station, 60 percent of whom are residents of color. By contrast, only 34 percent of all Connecticut residents are people of color. Similarly, 33 percent of residents within the facility's identified impact zone are low-income residents, compared to only 22 percent in the state overall. The EPA's EJScreen also identifies the facility area as both medically underserved and an area with significantly low life expectancy compared to the rest of the US, reaching the 95th to 100th percentile in some portions of the impact zone.

Altura Cogen (2021–Present)

Altura Cogen, a 644-MW gas-powered Texas facility acquired in August 2021, represents a particularly striking example. In 2021 alone, the facility emitted approximately 1,323,564 metric tons CO₂e and 964 metric tons CO₂e from methane, according to EPA

and EIA statistics.⁹⁹ According to EPA metrics, this is roughly equivalent to the burning of 1.4 billion pounds of coal, or the carbon dioxide emissions of over 285,000 gasoline-powered cars driven for one year.¹⁰⁰

Of the nearly 107,000 residents living within a five-mile radius of the facility, 84 percent are people of color, compared to 59 percent in the state of Texas overall. In addition, 40 percent of residents within the same radius are low-income, compared to 33 percent in the state as a whole. The EPA identifies the area immediately surrounding the facility as both medically underserved and in the 95th to 100th percentile for low life expectancy compared to the rest of the US.

Uneven Renewables Distribution

Just as Black, brown, Indigenous and poor communities are often at disproportionate proximity to fossil fuel infrastructure and its associated health risks, recent studies have suggested that communities of color also have less access to solar development and its associated energy benefits.¹⁰¹ In the same vein, just as the burden of Carlyle's US fossil fuel investments is poised to fall heavily on residents of color and low-income residents, the benefits of its few renewables investments may likewise be unequally distributed.

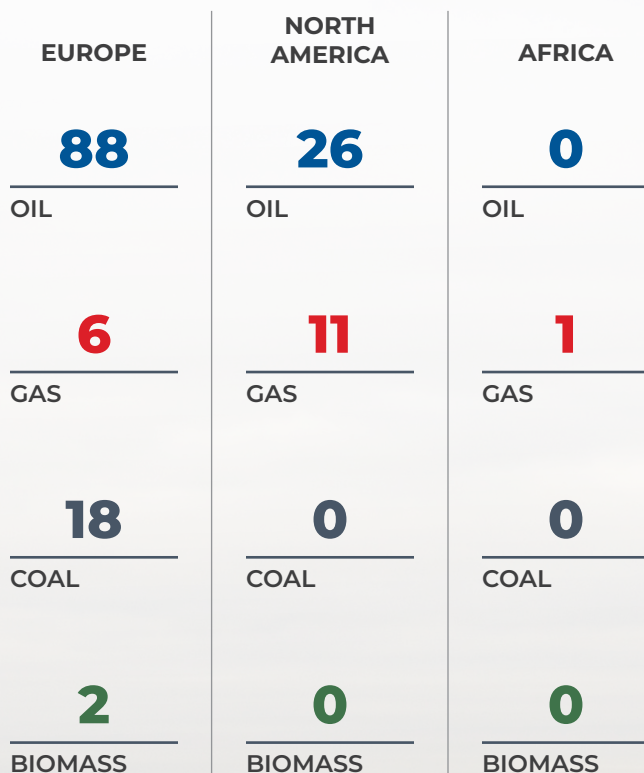


FIGURE 5
NUMBER OF CARLYLE MIDSTREAM ASSETS
ENERGY SOURCE, 2011–2021.



Source: Private Equity Climate Risks consortium
 Carlyle Group 2011–2021 Fossil Fuel Assets dataset

FIGURE 6
COUNT OF MIDSTREAM ASSETS BY
CONTINENT, 2010–2021.



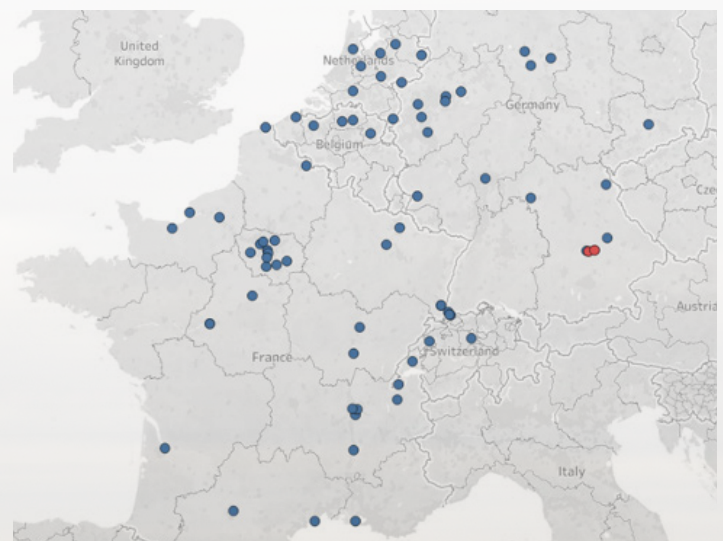
Source: Private Equity Climate Risks consortium Carlyle Group
 2011–2021 Fossil Fuel Assets dataset.

Carlyle currently backs approximately 36 identifiable renewable energy assets in the US, the vast majority of which are small-scale community solar projects operated by Amp Solar Group. Of the 30 assets for which location information was available, half (15 of 30) are located in areas with fewer low-income residents than the state average. Notably, 25 of 30 assets—or over 83 percent—were located in areas with a lower percentage of residents of color than the state average. In some cases, the disparity was as high as 42 percent. These statistics contrast with higher concentrations of residents of color near some fossil fuel power plants, suggesting that communities of color may not benefit from the lower localized emissions footprint of renewable power generation in Carlyle’s portfolio. Appendix B Table B.3 lists Carlyle’s 36 currently owned US downstream renewable facilities, locations, and selected demographics statistics.

Midstream Investment Strategy Dominated by Oil

Carlyle’s midstream portfolio comprises a wide variety of technologies and asset types, ranging from storage to transportation to processing, and includes gas, oil, coal, and biomass fuels.¹⁰² Carlyle midstream assets owned between 2011 and 2021 were primarily associated with oil, as shown

FIGURE 7
LOCATION OF CURRENTLY-OWNED
MIDSTREAM ASSETS IN EUROPE, BY
ENERGY SOURCE.



Source: Private Equity Climate Risks consortium Carlyle Group
 2011–2021 Fossil Fuel Assets dataset.

in Figure 5. These oil assets include pipelines, processing and storage facilities, terminals, and refineries. Gas and coal midstream assets were also common and included similar types of assets, while biomass terminals were the least common asset type.

Figures 6 and 7 show the number of assets owned by Carlyle portfolio companies over this period by region and country. Overall, Europe was home to almost three times the number of midstream assets as the US. Many of these European assets are part of Varo Energy, a company headquartered in Switzerland with refineries, storage terminals and fuel sales across Europe.¹⁰³ Carlyle invested in Varo starting in 2013 before taking a majority 66 percent stake in 2021.¹⁰⁴ Other midstream investments assets include certain assets from Neptune Energy, an onshore and offshore drilling company based in Europe, of which Carlyle holds a 31 percent stake.¹⁰⁵ In the US, Carlyle owns Cardinal Midstream (see more information below), while NGP owns Outrigger Energy, a pipeline company based in Colorado.¹⁰⁶

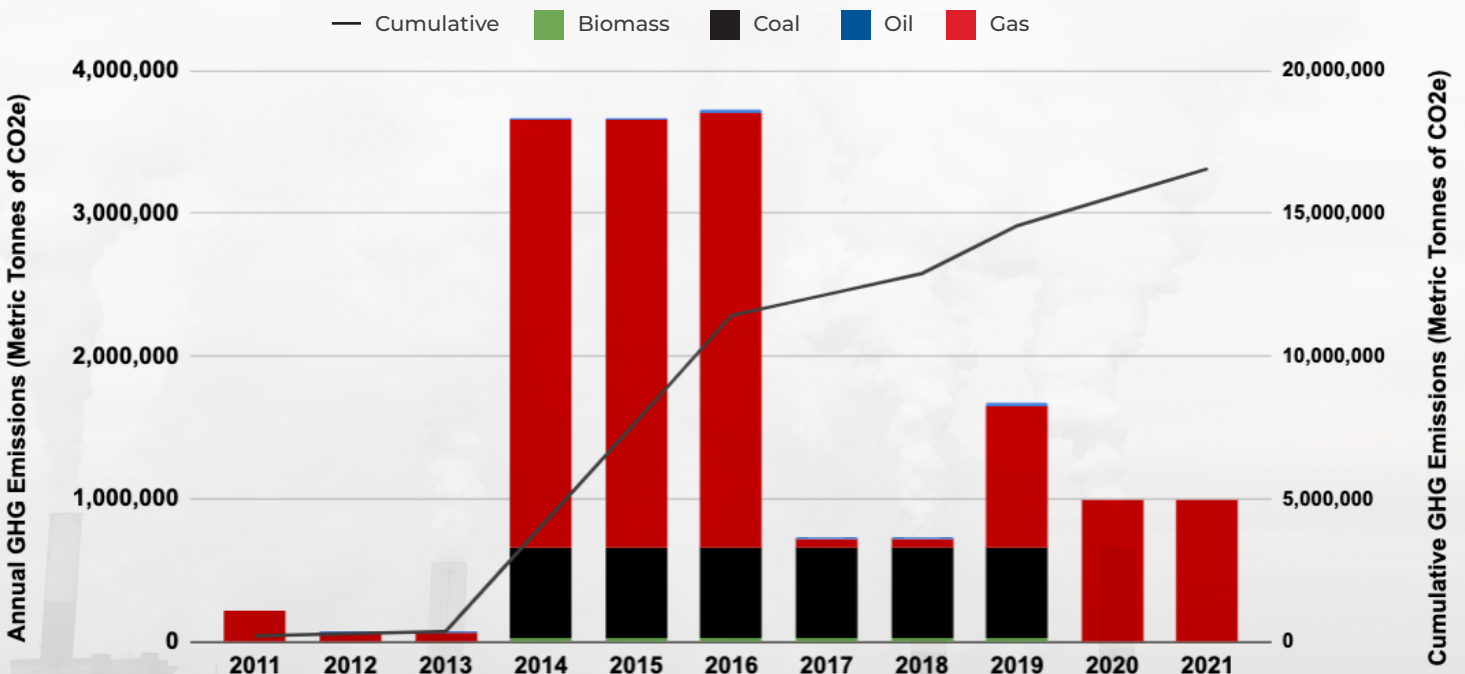
For midstream assets, the primary source of emissions is fugitive methane leakage, a common

source of methane emissions.¹⁰⁷ Emissions calculations for Carlyle's midstream portfolio represent only those assets for which an accurate capacity data point was available, meaning the true emissions figures are likely to be *much higher*.

Fugitive methane leakage accounted for an estimated 99 percent of the emissions in Carlyle's midstream portfolio, as represented in Figure 8. The largest emissions source over this time period was gathering pipelines,¹⁰⁸ which leaked an estimated almost twelve million metric tons of CO₂e between 2011–2021. Gas cryo facilities also played a significant role during these same years, accounting for another quarter million metric tons of CO₂e per year. Outside of gas, a major source of methane emissions stemmed from coal storage facilities and terminals, where methane leakage accounted for over 600,000 metric tons of CO₂e per year between 2014 and 2019.¹⁰⁹

In addition to fugitive emissions, midstream asset operation carries inherent health and safety risks, due to the volatile nature of the fuels being transported, as demonstrated by the case studies below.

FIGURE 8
CARLYLE'S ESTIMATED MIDSTREAM EMISSIONS (METRIC TONS CO₂E) PER YEAR, 2011–2021.



Source: Private Equity Climate Risks consortium Carlyle Group 2011–2021 Fossil Fuel Assets dataset.



The Philadelphia Energy Solutions refinery stands at sunset in Philadelphia, Pennsylvania, on Jan. 26, 2018. PES was the biggest refiner on the U.S. East Coast before closing down in bankruptcy. Photographer: Michelle Gustafson/Bloomberg via Getty Images

Crimson Midstream (2012–Present)

NGP invested in portfolio company Crimson Midstream (with assets in California, Louisiana, and offshore in the Gulf of Mexico) in 2012, then sold it to Carlyle in 2019.¹¹⁰ Crimson had a record of incidents “involving corrosion, equipment failure and excavation damage since 2006, resulting in more than \$5.8 million in property damage ... [and] approximately 7,453 barrels of hazardous liquid” spilled through 2016, according to an LA Times analysis of US Department of Transportation’s Pipeline and Hazardous Materials Safety Administration data.¹¹¹

From 2016 to 2018, under NGP financing, Crimson’s oil pipelines “had the nation’s second-highest three-year average of oil spilled.”¹¹² In one of those instances, a Crimson pipeline in Ventura County, southern California leaked an estimated 45,150 gallons of crude oil which flowed into a nearby creek, killing and harming animals, before it was stopped by first responders and company staff.¹¹³ According to the California Department of Fish and Wildlife, eleven animal carcasses were found on the site, most of which were oiled.¹¹⁴ Cleanup lasted for months and nearby residents had to evacuate their homes due to air quality concerns.¹¹⁵ Crimson agreed

to pay over \$1.6 million in penalties to California government agencies.¹¹⁶

Carlyle sold Crimson’s California pipeline assets in 2021,¹¹⁷ but continues to own assets in Louisiana.

Philadelphia Energy Solutions (2012–2018)

Carlyle’s extractive practices have been linked to at least one catastrophic incident. In June 2019, a corroded pipe triggered a fire and a series of explosions in the Philadelphia Energy Solutions (PES) refinery. The explosions injured five workers and sent over 5,000 pounds of deadly chemicals into the air of a majority Black neighborhood in South Philadelphia.¹¹⁸ A few months before the explosion, the refinery had significantly “scaled back” a major maintenance project in the same section where the explosion occurred, “due to lack of money.”¹¹⁸ Meanwhile, Carlyle and a group of other private equity companies extracted over half a billion dollars (\$594 million) in dividends and fees between 2012 and 2018 from the refinery, worsening its financial condition.¹²⁰ The refinery eventually went into bankruptcy and was shut down, with some 1,000 workers losing their jobs without severance pay or continuing health benefits.¹²¹

Upstream lifecycle emissions from Carlyle-backed production - 255 MtCO2e over a decade

The International Energy Agency's "Net Zero by 2050" roadmap asserts that global demand for oil and gas must fall by 75 percent and 55 percent, respectively, between 2020 and 2050.¹²² Despite this, Carlyle (relying largely on NGP, though it has also invested in exploration and production companies itself) has invested in dozens of upstream drilling and fracking companies across the globe and across multiple drilling basins in the US. To date, NGP continues to expand its upstream investments, with a current portfolio of around 20 oil and gas companies with operations in states including Texas, New Mexico, Colorado, Wyoming, Oklahoma, North Dakota, Montana, and Utah.¹²³

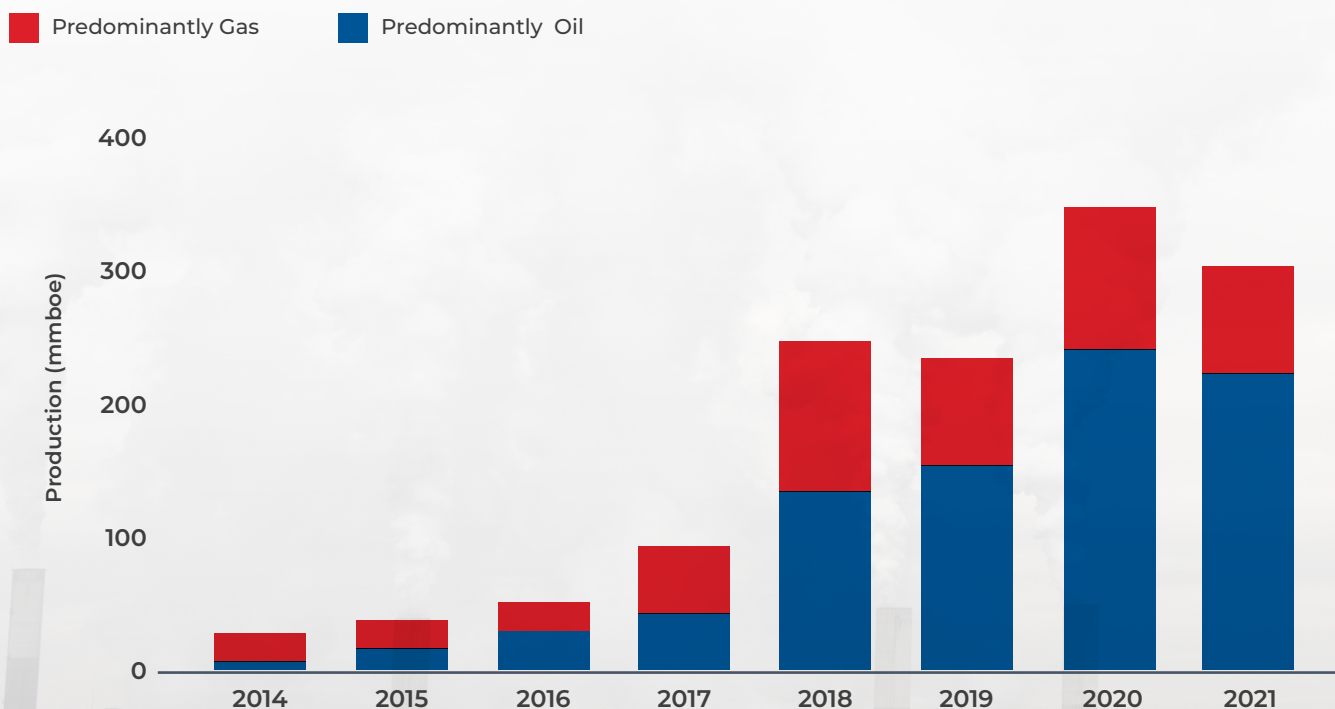
Carlyle's global upstream footprint includes Black Sea Oil, an offshore drilling company that launched last year off the coast of Romania despite the commercial risks of operating near the Ukrainian warzone,¹²⁴ and which recently complained that

regulations and taxes were impeding higher production.¹²⁵ In the US, several of Carlyle's portfolio companies operate in the world's largest oil field, Texas and New Mexico's Permian Basin, which is infamous for its substantial methane emissions.¹²⁶ One particular company, Hilcorp, was a joint venture partner for Carlyle while ranking as one of the nation's highest methane emitters between 2019 and 2021.

Between 2011 and 2021, Carlyle and NGP-backed portfolio companies produced approximately 1,300 million barrels of oil equivalent (mmboe) worth of oil and gas from upstream assets while under Carlyle ownership. For reference, the US Energy Information Administration estimated that the US used about 7,400 million barrels of oil in 2022.¹²⁷ Almost two-thirds (65 percent) of Carlyle's total production was predominantly oil-based, while the remaining 35 percent was predominantly gas-based (Figure 9).

Carlyle and NGP's annual upstream oil and gas production hovered under 100 mmboe between 2014

FIGURE 9
CARLYLE/NGP'S OIL AND GAS PRODUCTION (MMBOE) BY YEAR, 2014-2021.



Source: Rystad Energy, Private Equity Climate Risks consortium analysis.
Note: No available data for Carlyle and NGP's portfolio companies before 2014.

and 2017, exceeded 200 mmbœ in 2018, and peaked at 328 mmbœ in 2020. Gas and oil production levels were roughly equivalent until 2019, but by 2021, Carlyle was producing three times more oil than gas.

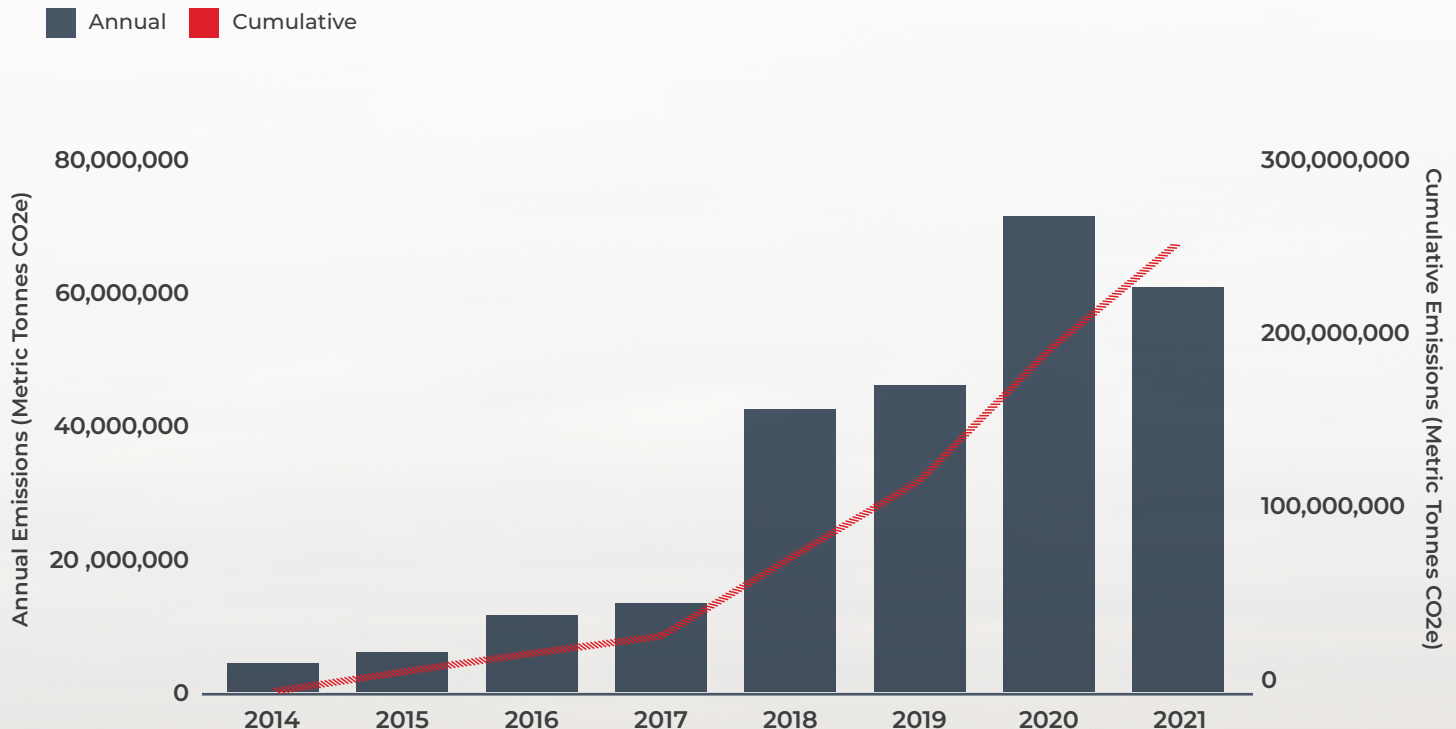
The upstream emissions figures shown in Figure 10 include elements of Scope 1 emissions (energy required for fuel extraction), Scope 2 emissions (fugitive emissions associated with extraction), and Scope 3 emissions (including end use combustion emissions).

Upstream emissions rose along with production, peaking at 72 million metric tons of CO₂e per year in 2020. Upstream emissions over this period totaled at least 255 million metric tons—roughly equivalent to operating 68 coal plants for an entire year.¹²⁸

In the portfolio company case studies below, the immediate impacts of Carlyle and NGP’s aggressive upstream merger and acquisition growth strategy fell disproportionately on communities of color and low-income communities.



FIGURE 10
CARLYLE/NGP’S ESTIMATED ANNUAL UPSTREAM EMISSIONS
(METRIC TONS CO₂E), 2014–2021.



Source: Rystad Energy, Private Equity Climate Risks consortium analysis.

Tap Rock (2016–Present)

One of the largest exploration and production platforms in the portfolio is Tap Rock Resources, which was created in 2016 by NGP.¹²⁹ The company has grown through a series of acquisitions of drilling assets, which now covers 35,000 net acres, with daily net operated daily production in excess of 100,000 barrels of oil equivalent per day (boepd), making it one of the “premier private companies in the greater Permian Basin.”¹³⁰ In May of 2022 Tap Rock Resources was deemed one of the top five drillers in the Delaware subbasin of the Permian Basin.¹³¹ *Reuters* reported in April that NGP may be seeking to cash out with a sale of Tap Rock.¹³²

Tap Rock operates in Eddy and Lea counties in New Mexico, a hotbed of drilling activity by multiple companies where the vast majority of people live within one mile of an oil or gas well.¹³³ Both counties are majority people of color and above the state’s average, with Latinos making up 52 percent of Eddy County and 62 percent of Lea County.¹³⁴

According to data from the New Mexico Oil Conservation Division, since 2017 Tap Rock has reported nearly 4,800 incidents, primarily flaring, of which over 600 were considered “major,”¹³⁵ meaning unauthorized releases sufficiently large to endanger human health, threaten water sources or result in a fire.¹³⁶ The EPA also issued informal notices at Tap Rock sites, including the Pliny facility in Eddy County near

Carlsbad which was deemed a high priority violation of the Clean Air Act, and remained out of compliance over a two-year period between 2020 and 2022.¹³⁷

Hilcorp (2018–2021)

Carlyle formed a joint venture with Hilcorp Energy in 2015, a deal to provide mezzanine growth capital to one of the largest private oil and gas producers in the US.¹³⁸ The Carlyle-Hilcorp venture acquired assets in the San Juan basin of northwestern New Mexico in 2017 from ConocoPhillips consisting of 1.3 million net acres producing approximately 120,000 boepd of natural gas.¹³⁹ The companies said they intended to increase production in a “safe and environmentally responsible manner.”¹⁴⁰ However, Hilcorp was one of the nation’s highest methane emitters from 2019 to 2021, according to analyses of EPA data.¹⁴¹ According to the *New York Times*, Hilcorp Energy, “reported almost 50 percent more methane emissions from its operations than the nation’s largest fossil fuel producer, Exxon Mobil, despite pumping far less oil and gas.”¹⁴²

In addition to the emission from the overall drilling operations in the San Juan basin, in 2018 Hilcorp violated both state and federal air quality laws by not adequately containing emissions from one of its wells in the basin.¹⁴³ Uncontrolled emissions can lead to the formation of ground-level ozone and other hazardous air pollutants, according to the New Mexico Environment Department (NMED).¹⁴⁴ Carlyle’s joint venture with Hilcorp ended in 2021.





Workers weld a pipe at a Colgate Energy site in Reeves County, Texas in 2018. Photographer: Callaghan O'Hare/ Bloomberg via Getty Images

Colgate Energy (2015–present)

NGP retains but is tapering down its eight-year-old relationship with Colgate Energy, an oil and natural gas exploration and production company that was founded in 2015 with backing from Pearl Energy Investments and NGP.¹⁴⁵ The company's focus is in the Delaware sub-basin, specifically in majority-Latino Reeves and Ward Counties in Texas and Eddy County, New Mexico.¹⁴⁶ The Latino communities in Eddy, NM and Ward, TX counties disproportionately live below the poverty line compared to the counties' total population.¹⁴⁷

Within six years, Colgate became one of the most active private drillers in the Permian Basin through a series of acquisitions. One of the larger deals was with Occidental Petroleum, which sold 25,000 net acres in the Permian Basin, producing approximately 10,000 boepd from 360 active wells for \$508 million.¹⁴⁸

Colgate also took over Luxe Energy in 2021, which NGP had also backed since 2016,¹⁴⁹ thereby combining two portfolio companies into one.

Colgate said the acquisition made it one of the “largest private companies in the Permian Basin.”¹⁵⁰

Becoming one of the premier operators in the Permian Basin comes with a high climate footprint. Environmental observers reported that Colgate Energy's fracking operations occur dangerously close to communities with the Lazarus 67 Unit in Pecos emitting toxins “very near a Spanish-speaking, low-income neighborhood” with abandoned wellheads left to flare just a few yards from communities.¹⁵¹

In 2022 Colgate Energy recently announced a \$7 billion merger of equals with Centennial Resource Development, with Colgate owners retaining a 47 percent stake.¹⁵² The merged company was renamed Permian Resources, and NGP has been gradually selling off its shares.¹⁵³

CONCLUSIONS AND POLICY RECOMMENDATIONS

At a time when international efforts to *reduce* emissions are crucial to containing climate change, Carlyle's total emissions had a compound annual growth rate of 95 percent from 2011 to 2021, amounting to at least 277 million metric tons of CO₂e. During this period, 90 percent of Carlyle-backed energy companies and 90 percent of its energy assets held were fossil fuel investments. In addition to the climate impacts, a disproportionate share of the localized public health costs of Carlyle-backed fossil fuel assets will be borne by communities already marginalized by the ravages of climate change and environmental pollution.

Carlyle has benefited from the current loophole-riddled regulatory framework for private equity firms to largely avoid public backlash and to continue raising capital from institutional investors, even as investors increasingly commit to exit or curb financing of fossil fuels.

Private equity's distorted financial incentives to maximize returns in the short term pose additional investor and environmental risks. The excessive debt burden imposed on portfolio companies— usually coupled with intense cost-cutting measures and financial engineering to extract money as fees and dividends—can leave companies vulnerable to bankruptcy and accidents.¹⁵⁴

Carlyle's fossil fuel portfolio exposes investors to a variety of climate-related risks, and their lack of comprehensive disclosures means neither the public, regulators, nor investors have adequate information to assess and mitigate those risks.

Investors Can Take Action

Institutional investors face significant climate risks through exposure to private equity's investments in fossil fuels, as well as financial and transition risks as society seeks to decrease GHG emissions and move to a clean energy economy. Even investors

actively seeking to address these risks in their public market portfolios may have exposure to dirty assets concealed by the “black box” of private equity.¹⁵⁵ Energy has also been among the weakest performers in private equity investment strategies, with energy funds posting low- to negative- returns from 2008–2018, according to McKinsey's 2022 review of private markets.¹⁵⁶

To mitigate these risks, institutional investors need additional information to assess how well private equity firms are adapting their portfolios and energy strategies for the clean energy transition. Investors should call upon their private equity managers to commit to align their portfolios with science-based targets to keep within a 1.5 degree Celsius warming pathway; fully disclose fossil fuel holdings and environmental impacts (portfolio company and firm level Scopes 1, 2 and 3 emissions), energy transition plans, and climate lobbying; and integrate climate and environmental justice with the communities and workforces impacted by the climate crisis.

Investors are encouraged to shift capital investments toward private equity firms that are credibly transitioning away from fossil fuels, and firms that are more transparent about their holdings, emissions and impacts, not just with investors, but also the public, as we are all impacted by climate risks.

This report can serve as a resource for current investors in Carlyle, or those considering new capital commitments to Carlyle funds, to ask questions about how the firm intends to provide its own disclosures on its current portfolio of energy companies and assets as well as their emissions and impacts. Furthermore, this report underscores the importance of transparency and concrete benchmarks on how Carlyle intends to mitigate these impacts and transition its portfolio toward a low-carbon economy.



Private Equity Needs to Change

Across the industry, private equity's investments in fossil fuels are causing harm to communities, contributing to the climate crisis, and exposing investors' capital to risks. The industry should no longer hide behind the lack of regulatory disclosure mandates. Instead, it must be transparent and accountable for its impacts and should act to remediate the harms of this model, particularly in communities of color where both climate impacts and toxic pollution are the highest. Private equity managers must simultaneously transition to a clean energy economy, including a just transition for workers.

For the industry to make meaningful progress on these issues, a group of non-profit policy, research, environmental justice and environmental organizations developed a detailed set of demands for the industry Private Equity Climate Risks Scorecard.¹⁵⁷ The topline demands are:

1. Align with science-based climate targets to limit global warming to 1.5 degrees Celsius
2. Disclose fossil fuel exposure, emissions, and impacts
3. Report portfolio-wide energy transition plan
4. Integrate climate and environmental justice and a just transition
5. Provide transparency on political spending and climate lobbying

In order for Carlyle to account for its decades of fossil fuel pollution, it should provide investors and the public with ongoing disclosures of its energy portfolio – including companies that are majority owned, minority stakes, joint ventures, credit investments and any other revenue-generating activities. Subsidiary NGP should be included in all disclosures and reporting, since it is a significant contributor to greenhouse gas emissions, as well as a significant source of revenue for Carlyle. According to the Associated Press, “Carlyle confirmed to the AP via email that it does have an emissions report from NGP,”¹⁵⁸ which means it should be able to incorporate that information into its TCFD report, Net Zero 2050 goal or other climate pledges. Beyond disclosure of its environmental impacts, Carlyle should provide clear benchmarks for transitioning away from fossil fuels and for a low-carbon economy that includes a just transition for incumbent workforces and remediation for frontline communities.



Policyholders Must Protect Investors and the Public

Investor engagement and voluntary industry disclosures should continue to move forward, but as important as such initiatives are, they are hindered by the lack of standardized, mandated disclosures. “There are limits to what decentralized private sector action can achieve ... Private companies and financial institutions will not fully take the impact of their actions on our climate into account unless public policy forces them to do so,” according to an analysis by the Group of 30.¹⁵⁹ As a Biden executive order puts it, “The Federal Government must drive assessment, disclosure, and mitigation of climate pollution and climate-related risks in every sector of our economy.”¹⁶⁰

The SEC, for example, has a clear mandate to protect investors, promote fair and efficient markets, and to facilitate capital formation.¹⁶¹ To that end, the agency should extend its proposed climate-risks disclosures rule to include private markets. The proposed rule would enhance integrity, reliability, and consistency among disclosures, and would allow investors a look under the hood of the funds to better understand the climate-related risks of their investments.¹⁶² To avoid creating incentives for private equity firms to manipulate emissions accounting by leaving portfolio companies out of the equation, the SEC should explicitly require robust, disaggregated disclosure of Scopes 1, 2 and 3 emissions at *both* the private equity firm and portfolio company level.¹⁶³ Disclosing all six measures would facilitate accurate asset valuation and allow investors to compare reality versus rhetoric, identifying climate leaders and exposing laggards.¹⁶⁴ The SEC should also encourage its already established Climate and ESG Task Force to be proactive against the practice of intentionally misleading investors through greenwashing.

The private equity industry’s explosive growth and unchecked negative impacts have been enabled by an outdated legal framework.¹⁶⁵ The legislative branch should also advance proposals to close the regulatory loopholes and exceptions that allow private equity executives to become massively wealthy even as they wreak havoc on the economy

and propel a climate catastrophe. The Stop Wall Street Looting Act would address the predatory elements of the private equity business model that harm workers, investors, and communities—including by:¹⁶⁶

- Making private equity executives and firms liable for the damage they may cause, including environmental violations.
- Revising bankruptcy laws to protect workers and place paid severance and other promised contributions from employers as a higher priority in the bankruptcy process.
- Limiting the executive compensation private equity and portfolio firm executives can take out of companies during bankruptcy.
- Closing tax loopholes that allow private equity magnates to pay lower taxes than essential workers.
- Requiring private equity firms to be transparent about costs and returns, and disclose information regarding political spending, climate risks, and public funding received by portfolio companies.

APPENDICES

Appendix A: Methodology

General Research Process

Portfolio Company Verification (Deals and Companies)

Since private equity firms do not provide comprehensive disclosures of current or former investments, the research team built a data set based on a variety of sources. First, we conducted an initial query of energy holdings from January 1, 2010 to December 31, 2021 via the private markets data provider Pitchbook.¹⁶⁷ Researchers collected additional sources to build a data set of verified Carlyle or NGP portfolio company investments that included company websites, press releases, SEC and other regulatory filings, and news articles.

Private equity firms invest in portfolio companies through a variety of strategies including leveraged buyouts, majority stake investments, minority stake investments, control or non-control investments, credit or lending investments, joint ventures, via intermediaries or directly, and others. Carlyle and NGP have invested in portfolio companies through a range of these strategies, but the precise nature of each investment arrangement is often not disclosed. Each of these investments provides capital to portfolio companies that enables their operations and the associated emissions and environmental impacts. This report describes any such investments in portfolio companies as “invested” or “owned” or “backed.”

The data set of portfolio companies and assets was shared with Carlyle and NGP in advance of publishing this report, and each provided feedback and clarifications on ownership of certain companies or assets. The research team conducted a final round of verifications to review multiple sources to confirm investments by Carlyle or NGP in each portfolio company. For some assets Carlyle disclaimed ownership, in some of those cases we provided the firm with additional sources confirming investments and requested further clarification to which Carlyle did not respond.¹⁶⁸ Some other investments and assets were removed from the data set based on the input provided by the firms.

Asset Verification

Once deal and company information was verified, the next step of the process was to identify the assets owned by portfolio companies, but only during the period of Carlyle or NGP’s ownership. This was accomplished by searching through a variety of online sources including: company websites, news articles, press releases, corporate financial reports, and government databases including those from the Environmental Protection Agency (the FLIGHT tool and the ECHO database), the Energy Information Administration (Form 860), and the Pipeline and Hazardous Materials Safety Administration.

Additionally, in order to capture historical data from many of these sources, the Internet Archive: Wayback Machine was utilized wherever possible in order to view asset lists at the time of Carlyle or NGP’s ownership.¹⁶⁹

Start and Exit Year

Establishing the start and exit year for the portfolio companies and assets was a critical step in the process of aggregating values like capacity, generation, and emissions for assets *ONLY* during those years of

ownership. So for example, if a Carlyle-backed portfolio company was owned between 2015 and 2019, and it owned just one gas power plant during that time, but the plant was owned and operated both before and after 2015 and 2019, we only recorded capacity, generation, and emissions for the years 2015 to 2019, in effect ignoring the plant outside of these Carlyle-owned years.

Fields collected/calculated:

- Deal/Company information
 - Company
 - Parent Company
 - Company Energy Sector (e.g., upstream, midstream, downstream)
 - Company Energy Source (e.g., oil, gas, solar, etc.)
 - Deal Description/Synopsis
 - Company Role
 - Deal Date
 - Asset Start Year
 - Asset Exit Year
 - Private Equity Investors
 - Deal Type (e.g., leveraged buyout, joint venture, private equity growth, etc.)
 - HQ Location
 - Area of Operations

- Asset information
 - EIA NAME
 - EIA Plant Code
 - Asset Name
 - Unit/Phase Name
 - Asset Energy Sector
 - Asset Energy Source/Fuel
 - Asset Energy Type (e.g., technology)
 - Asset Role
 - Planned Retirement Year (EIA)
 - GEM Location ID (updated)
 - GEM Unit ID (updated)
 - GEM.wiki
 - Capacity/length
 - Capacity Units
 - Technical specifications
 - Specific and general location information
 - Lat/Long
 - Address details (where applicable)
 - Region
 - Country
 - Basin (if applicable)
 - GHG Reporting information
 - Capacity during owned years
 - Generation during owned years
 - Emissions during owned years (Total and Methane-20yr and 100yr)

- EPA
 - FRS ID (EPA)
 - Enforcement Violations
 - ECHO URL(s)
 - Quarters Noncompliance (Last 3 Years)
 - Quarters Significant Violation
 - Informal Enforcements
 - Formal Enforcements
 - EPA Cases
 - Penalties from Formal Enforcements
 - percent People of Color (5 Mile Radius)
 - percent Low Income (5 Mile Radius)
 - State Average percent People of Color
 - State Average percent Low Income
 - Population w/in 5 Mile Radius

Categorization

Downstream

The Downstream sector was broken down into fossil and renewable energy categories. Within the fossil category we included coal, gas, oil, and biomass. Although biomass is not a traditional fossil fuel, we included it in the fossil category based on perspectives from the National Renewable Energy Laboratory, who note that “burning biomass releases about the same amount of carbon dioxide as burning fossil fuels.”¹⁷⁰

In the renewable category, we included utility-scale energy generation technologies that utilize solar, wind, and hydro power. Battery storage facilities were also included in the renewable energy category. These assets can of course be charged with fossil-fuel generated electricity, but the only instances we documented of battery storage were associated with renewable energy generation.

Midstream

In the midstream category we documented assets responsible for storing, transporting, and processing fuels. This included assets like pipelines, terminals, storage containers/facilities, refineries, and cryo facilities responsible for converting natural gas from a gaseous form into a liquid form. These assets spanned the fuel types of gas, coal, oil, and biomass.

Upstream

The upstream sector included assets responsible for the original extraction of oil and natural gas from the earth, both onshore and offshore. Many of the upstream assets in this study were not specifically named like other assets in this study, such as power plants or pipelines, because a given company might own a large number of assets but without detailed identifying information. For example, researchers working on this project could usually find naming documentation of specific power plants, terminals, or pipelines, but when reviewing upstream assets, listings could be described as: “Chesapeake Energy (West Texas and New Mexico Assets).” Because of these complications, for upstream assets we made note of oil/gas production levels from the entire group of assets owned by one company in one area/basin.

The authors worked with Carbon Tracker to generate estimates of production and emissions from upstream assets during the period they were owned by Carlyle. The authors provided portfolio company ownership data to Carbon Tracker, which was matched with data on oil and gas production assets from Rystad

Energy,¹⁷¹ a specialized provider of oil and gas industry data. Emissions data is estimated from production data using derived emissions factors.

Emissions calculations methodologies

Emissions Scope

Private equity firms like Carlyle have impacts on the climate through both their corporate operations and their investment portfolios through direct and indirect emissions. The investment portfolio typically has far greater impacts, and accounts for around 99 percent of emissions, as seen in Figure A.1, developed by the Initiative Climat International (iCI).¹⁷² In order to capture the entire emissions footprint of private equity firm activities, Scopes 1, 2, and 3 emissions should be disclosed both at the firm level and across the full investment portfolio.¹⁷³

At the level of corporate operations, Carlyle has reported that it achieved “carbon neutrality,”¹⁷⁴ but this does not include the investment portfolio where the bulk of emissions are produced. In the iCI framework corporate operations fall under the Scope 1 direct and Scope 2 indirect categories which combined make up 0.19 percent of emissions in the example firm seen in Figure A.1 below.¹⁷⁵ Moreover, Carlyle reports that it relied partially on voluntary carbon offsets to reach this goal, products that are unregulated and have increasingly been found ineffective at reducing carbon.¹⁷⁶

FIGURE A.1.

EXAMPLE GHG EMISSIONS INVENTORY FOR AN AVERAGE PRIVATE EQUITY FIRM INVESTED IN FOSSIL FUEL INFRASTRUCTURE (ICI)



Source: Initiative Climat International (iCI). “Greenhouse Gas Accounting and Reporting for the Private Equity Sector.” May 2022. Figure 15 at p. 45.

In order to capture the climate impacts from Carlyle's most carbon-intensive activities, this report focused on a subset of the investment portfolio—the fossil fuels assets of portfolio companies. We looked at the emissions associated with upstream, midstream, and downstream energy infrastructure, to include stationary combustion, fugitive emissions, and process emissions from portfolio companies. These emissions from fossil fuel assets are attributed to Carlyle if it invested at any level, since the investment capital facilitates the portfolio company's activities and environmental impacts. This means that there are elements of Scope 1 and 2 emissions from portfolio companies not included here, such as the emissions associated with electricity and HVAC in their offices, and that we also exclude Scope 3 emissions related to the downstream portfolio. Thus, the emissions from Carlyle's energy and infrastructure portfolio companies calculated in this report do not represent their total emissions, but more than likely represent the vast majority of portfolio company emissions.

Carlyle acknowledges the need to reduce emissions in its portfolio companies, through its announcement of a Net Zero 2050 goal in 2022.¹⁷⁷ Although most of Carlyle's private equity peers have failed to make a similar pledge, it falls short by not covering the full portfolio, excluding Scope 3 emissions of portfolio companies, excluding minority-stake investments which would not achieve alignment with the Paris Agreement, and not committing to public disclosure of emissions.¹⁷⁸

Downstream

For those downstream power plants in the US Energy Information Administration's Form 923 database, reported generation values (MWh) were pulled for the years the plant was owned by Carlyle portfolio companies.¹⁷⁹ Using generation data, emissions factors from EPA's eGRID program were pulled and applied to calculate total emissions and emissions from methane for 20 year and 100 year global warming potential.¹⁸⁰ These emissions factors differed based on the fuels utilized by each plant (for example, coal was different from gas).

For those downstream power plants not present in the EIA databases, we collected plant capacity from public sources (such as news articles, financial reports, and company websites) and then applied average emissions factors by plant type from EIA's Electric Power Monthly's "Chapter 6. Capacity" data.¹⁸¹ This resulted in estimated generation values, which were then used in conjunction with the EPA eGRID emissions factors as outlined previously. And while we did not calculate any emissions for renewable energy sources, generation data was still calculated in the same way.

Midstream

By definition, the midstream sector does not include points of fuel extraction (upstream) or points of fuel combustion/primary use (downstream). Given this, when making emissions calculations, we do not include the emissions produced when burning the fuels themselves, and instead focus on the process and fugitive emissions associated with transporting, storing, and processing the fuels. That is, it takes energy to transport a fuel such as gas, and gas also leaks during this process, and both of these factors result in emissions attributable to the midstream sector. The utilization factor for midstream assets (e.g. pipelines, storage containers, refineries) was not always a discoverable fact throughout the research process. To make an estimate, several sources were consulted, several of which pointed to an annual utilization factor of 70 percent,^{182, 183} which was applied across midstream assets where utilization factors were not found.

When calculating fugitive emissions from midstream assets, wherever possible the emissions factors from the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 4: Fugitive Emissions* was used.¹⁸⁴ The emission factors from this source can be seen in Table 1 below. The specific emissions factors that were used in this study include those for oil and gas gathering pipelines, gas processing, and oil refining.

TABLE A.1.

IPCC FUGITIVE EMISSIONS FOR OIL AND GAS ASSETS, 2019.¹⁸⁸

At least 18 of Carlyle's 19 facilities, or 95 percent, raise at least one EPA or environmental justice concern (see Appendix A for definitions).

Fuel	Segment	Subsegment	CH4 Value	CO2e from CH4 (20yr)	CO2e from CH4 (100yr)	CO2 Value	Units of measure
Oil	Transport	Pipelines	0.005	0.443	0.154	0.000	Tonne per thousand cubic meters of oil transported
Oil	Transport	Tanker trucks/rail cars	0.025	2.050	0.713	0.002	Tonne per thousand cubic meters of oil transported
Oil	Transport	Storage tanks/terminal	0.002	0.164	0.057	n/a	Tonne per thousand cubic meters of oil fed
Oil	Refining	Refinery	0.030	2.460	0.855	5.850	metric tons per thousand cubic meters oil refined
Gas	Production	Gathering	3.200	262.400	91.200	0.350	metric tons/million cubic meters onshore production
Gas	Processing	Processing	0.750	61.500	21.375	9.450	metric tons/million cubic meters gas processed
Gas	Processing	Processing	0.570	46.740	16.245	7.210	metric tons/million cubic meters gas produced
Gas	Transmission/storage	Pipeline	1.290	105.780	36.765	0.150	metric tons/million cubic meter gas consumption
Gas	Transmission/storage	Pipeline	2.080	170.560	59.280	0.250	metric tons/kilometer pipeline
Gas	Transmission/storage	Storage	0.290	23.780	8.265	0.040	metric tons/million cubic meter gas consumption
Gas	Transmission/storage	LNG import/export	1,660.000	136,120.000	47,310.000	14,687.000	metric tons/station
Gas	Transmission/storage	LNG Storage	22.000	1,804.000	627.000	277.000	metric tons/station

Source: Intergovernmental Panel on Climate Change. **2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories**. Volume 2: Energy. Chapter 4: Fugitive Emissions. 2019.

Additional emissions factors outside of the IPCC table were used when necessary, including those for coal and biomass terminals/storage and cryogenic gas facilities. For coal storage, the emission factor for fugitive methane was an average from 52 coal sources across the US and Canada (annual average = 0.74 cubic meters CH₄/tonne coal/year) as calculated within a 2012 study conducted by Canada's Ontario Ministry for the Environment.¹⁸⁵ For biomass storage, the emissions factor was sourced from a 2018 article on the subject published in *Renewable Energy and Sustainable Energy Reviews*.¹⁸⁶ For cryo gas facilities, the emissions factor used was calculated in 2012 by Ken Chow at energy consultancy Muse, Stancil & Co.¹⁸⁷

The upstream emissions were calculated by partners at Carbon Tracker Initiative using Rystad Energy data, which reportedly uses emissions factors that are broadly in line with the IPCC's Guidelines for National Greenhouse Gas Inventories.^{189, 190, 191} Fugitive methane emissions from upstream gas extraction points in the US were also calculated using data from Global Energy Monitor's *Gas Index* report.¹⁹²

Comprehensive (Upstream, Midstream, and Downstream)

In order to calculate a comprehensive emissions number for Carlyle (277 million metric tons CO₂e between 2011–2021), steps were taken to avoid double counting emissions associated with upstream and downstream emissions. Upstream emissions calculations incorporated the emissions content of the fuels themselves. If these emissions were then counted again in the downstream sector, this would be a double count. To avoid this when calculating the comprehensive total, the difference between downstream and upstream emissions were only added into the total when downstream values exceeded the upstream emissions values, which was relevant for the years 2011–2016. After that, upstream emissions exceeded downstream, so no downstream emissions counted towards the total.

EPA and Environmental Justice Methodology

Information on facility-level environmental violations and regulatory noncompliance (quarters noncompliance, quarters significant noncompliance, informal enforcements, formal enforcements, EPA cases, and penalties) was sourced from Detailed Facility Reports (DFRs) available through the EPA's Enforcement and Compliance History Online (ECHO) database.¹⁹³ Positive identification of each asset was confirmed by referencing its FRS Facility Detail Report (available through a hyperlink on the corresponding DFR page), which lists current and past owner, operator, parent owner, and parent company information.¹⁹⁴ DFRs provide data on quarters of noncompliance only for the 13 quarters (3.25 years) prior to the search date, and data on enforcements, EPA cases, and penalties for the 10-year period prior to the search date. The DFR analysis presented in this report was conducted between October 2022 and January 2023.

Following ECHO/FRS identification, the street address or latitude/longitude listed by ECHO for each asset was then entered into the EPA's EJScreen EnviroMapper tool, and a Printable Standard Report (5 mile buffer) generated for that location.¹⁹⁵ Data on population and socioeconomic indicators (percent People of Color/percent Low Income) were sourced from this report. Additional demographic statistics, such as data regarding Medically Underserved Areas, Low Life Expectancy, Heart Disease, and Asthma, were sourced from EPA maps available through the "Critical Service Gaps" and "Health Disparities" menus available on EJScreen.

Appendix B: Supplementary data

ENDNOTES

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