

A LOOK AT PRIVATE EQUITY TRANSITION FUNDS: ENERGY INNOVATION OR GREENWASHING?

How False Solutions Propel the Climate Crisis

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Americans for Financial Reform Education Fund is a nonprofit, nonpartisan coalition of more than 200 civil rights, community-based, consumer, labor, small business, investor, faith-based, civic groups, and individual experts. It was founded in the wake of the 2008 financial crisis and its mission is to fight to create a financial system that deconstructs inequality and systemic racism and promotes a just and sustainable economy. @realbankreform

Private Equity Stakeholder Project

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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. @PEstakeholder



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INTRODUCTION: FALSE SOLUTIONS PROPEL THE CLIMATE CRISIS



As the world continues to feel the effects of the worsening climate crisis, deadly fires, tornados, hurricanes and other climate-intensified disasters are negatively impacting frontline communities around the world and our global economy. In 2024 alone, there were 27 billion-dollar disasters¹ in the United States, causing \$184.8 billion in damage and 568 deaths.² The growing impact of climaterelated disasters has prompted escalating calls for a transition to a low-carbon energy economy across the globe, with public demonstrations and protests recently recorded in dozens of countries.³

Transitioning a global energy economy away from fossil fuels is no small feat, and emerging technologies need to be deployed to manage growing energy demands and satisfy outcries to mitigate the effects of climate change. However, the oil and gas industry and its investors continue to pursue financial gains from inflated energy prices, maintaining their economic and political power.⁴ Rather than investing in renewable solutions, many private equity firms have pivoted to investments that many consider to be greenwashing that serve the double purpose of generating positive press to potentially placate climate-related concerns while also justifying the continued production of fossil fuels.

Recently, the term "false solutions" has gained momentum to call out greenwashing or other potentially ineffective solutions that divert resources away from "true solutions" to decarbonizing our energy systems. Although there are varying definitions of false solutions, they generally contain the following components:⁵

- Technology not proven to be cost-effective or scalable to address energy or emissions reduction needs
- Solutions supported by the fossil fuel industry and that in some way promotes continued use of fossil fuels or fossil fuel infrastructure
- Market-based solutions that can satisfy the interest of investors to meet ESG or other climate-related goals but have limited oversight, reporting and accountability to show if climate goals are being met

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False solutions create confusion for investors and fiduciaries who genuinely wish to insulate their investment portfolios from climate-related financial risk and transition their traditional energy portfolios. Well-meaning investors may look to divert energy, infrastructure, and/or real assets investments towards energy transition funds with the assumption that these funds are better aligned with the investor's internal goals and policies to decarbonize over the coming decades. Energy transition funds have become a trend in private equity fundraising, with firms raising funds specifically targeting energy transition investments related to energy, infrastructure, natural resources and transportation.⁶

Today's current volatile economy, as a result of the current administration's chaotic and harmful economic decisions⁷ will certainly leave institutional investors looking for security wherever possible, and energy transition funds may continue to gain popularity. Institutional investors have historically turned to investing in tangible, physical assets, like infrastructure and real assets, for diversification and hedging inflation during economic uncertainty, ⁸however it is important to interrogate the details of these transition funds.

This report looks specifically at private equity's role in advancing false solutions and examples of how these false solutions may end up in their transition portfolios. Although false solutions industries receive funding from both public and private asset managers, the illiquidity and relatively long-term nature of limited partner's (LP) commitments to private equity should prompt a closer look into how private equity propels the climate crisis with false solutions. Institutional investors who invest in a new energy transition fund will likely have pensioners' retirement savings locked up in that fund until around 2035. This is the same year interim emissions reductions targets set by multiple institutional investors are intended to be met, including the California Public Employees Retirement System, California State Teachers Retirement System, New

York City Pension Funds, New York State Common Retirement Fund, Oregon Public Employees Retirement System, and others.⁹

The report will look at broad trends of private equity investments in false solutions and dive into case studies of six false solutions industries with examples of private equity investments in those industries, including:¹⁰

- Carbon Capture Technologies
- Carbon Trading
- Gas Certification
- Hydrogen
- Biomass
- Renewable Natural Gas

PRIVATE EQUITY'S ROLE IN FALSE SOLUTIONS

The Private Equity Climate Risk Consortium's 2024 Climate Risk Scorecard (Scorecard) report outlined a series of demands and researched the extent to which 21 of the top private equity firms are meeting those standards.¹¹ The climate demands for private equity were developed by the Private Equity Climate Risk Consortium to reduce climate and financial risks associated with their current and future investments.¹² Firms were designated as meeting the demand (yes), partially meeting the demand

(partial), or not meeting the demand (no) based on the firm's own reporting and disclosures.¹³

For this report, eleven of the demands relating to energy transition initiatives and participation in false solutions industries were examined to see the extent to which 21 of the top private equity firms are meeting those standards specifically. No more than four private equity firms have met any individual demand, as of October 2024, see below.

Demands Metrics Related to Energy Transition and False Solutions from 2024 Scorecard

	1				
Report gross emissions, avoided emission carbon credits, and carbon removal credits separately from one another, without netting. If carbon offsets are purchased,		2	0		10
Report progress with implementing climate transition plan throughout the firm's entire portfolio annually, and any adjustments that have been made to original	8		4	9	
Report capital expenditures due to climate impacts and for transition activities.		2	0		01
Commit to increase clean energy investments, year over year.		11	3	7	
Disclose plan to reduce use of carbon offsets to zero by 2025			21		0
Disclose details about the procurement and holding of offsets as well as the GHG emissions reductions achieved and anticipated from these offsets projects.		18			3 0
Disclose whether and to what extent the private equity firm and its portfolio company has purchased offsets over the reporting period and retired offsets as compensation	9		3	9	
Disclose the registry number and details of the projects underlying any carbon offsets acquired, and whether emissions were purportedly reduced, avoided, or		13	1	7	
While offsets are in use, state all assumptions used to calculate the GHG emissions changes		18		1	2
Disclose private equity firm level and portfolio company level use of carbon dioxide removal, carbon capture utilization and storage (CDR/ CCUS), and related			21		0
Disclose plans to reduce investment in CDR/ CCUS and instead plan to meet GHG targets through bonafide emission reductions			21		0
	n 1	5 1	0 1	5	20
No 📕 Yes 📙 Partial	N	Number of private equity firms			

The private equity industry has a long way to go to meet the needs of an energy transition. That being said, private investments in transition funds and assets are seeing increased capital expenditures. Over 890 private infrastructure vehicles containing some energy transition investment closed from 2014 through the first half of 2024, as outlined in the following graph.¹⁴

The lack of clear commitments from the private equity industry to properly disclose investments in false solutions industries and emissions reduction progress, and increased activity in energy transition fundraising creates an opaque understanding of what's really going on in private markets energy transition investing, despite the market potentially growing. Without clear disclosure and accountability measures, it's difficult to tell to what extent these funds are investing in true solutions. false solutions. or simply continuing to invest in fossil fuels despite branding a fund as "energy transition". One clear example of what this report considers greenwashing is Global Infrastructure Partner's Fund V (GIP Fund V). GIP, a wholly owned subsidiary of BlackRock, touts its focus on sustainability and decarbonization on their website saying:

"We aspire to be one of the world's leading owners, developers, and operators of renewable energy assets, in line with GIP's commitment to facilitating the global energy transition. We have a team focused on decarbonization investment opportunities across our targeted sectors."¹⁵

One investment in GIP Fund V, the company's latest flagship fund, is the Rio Grande LNG terminal -a methane gas export terminal.¹⁶ Analysis by the Private Equity Climate Risks Consortium estimates that the planned Rio Grande LNG terminal (Phase 1 and Phase 2) would emit about 22 million tons of CO₂ equivalent per year, which would be on par with the emissions of 58 natural gas-fired power plants every year.¹⁷ NextDecade recently announced plans to expand the project's scope from five liquefaction trains to eight.¹⁸ The emissions from the site of the three newly proposed trains would themselves emit over 7 million metric tons of CO₂ equivalent every year, which is the equivalent emissions from 18 natural gas-fired power plants.¹⁹ This is in addition to the emissions from the five liquefaction trains in Phase 1 and Phase 2 of the project.



Capital raised (\$B) by infrastructure funds with and without energy transition investment

Source: PitchBook • Geography: Global • As of June 30, 2024

Energy transition infrastructure AUM (\$B)



FALSE SOLUTIONS INDUSTRY OVERVIEW



Carbon Capture Technologies

Companies deploying carbon capture technologies including carbon capture and storage (CCS), carbon capture utilization and storage (CCUS), and enhanced oil recovery (EOR) have seen increases in both debt and equity financing in recent years.²⁰ Carbon capture technologies capture carbon dioxide from a source of pollution where it is then compressed, transported, and either used in another application or injected underground for storage. Carbon capture technologies have been in operation for over 50 years, predominantly for EOR, which uses compressed carbon dioxide as part of the fracking fluid to extract more oil from existing wells.^{21,22}

Carbon capture technologies have only recently been rebranded as an ESG tool as part of climate mitigation. In 2021, there were 12 operational CCS projects in the United States and 90 percent of them were used for EOR.²³ In 2023, there were 41 CCS projects operational, 29 of which being used for EOR. Now there are over 300 in development according to the Global CCS Institute.²⁴ EOR technologies have seemingly been rebranded as CCUS and are supported by the fossil fuel industry as a "climate friendly oil extraction practice."²⁵ The American Petroleum Institute (API), the largest trade association and lobbyist for the oil and gas industry had this to say about carbon capture technologies:

"Climate change poses a major risk, and API and our member companies are poised to play a pivotal role in its solution. ... There is certainly more work to do, and following the CCUS model, America's natural gas and oil industry is laser-focused on scaling existing technologies and developing new ones that will maximize

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emissions reductions in ways that are cost effective for businesses and consumers."²⁶

The API spent \$13 million on the 2024 election²⁷ and President and CEO Mike Sommers was one of 15 industry leaders invited to a closed door meeting with President Trump regarding "energy dominance".²⁸

Carbon capture technology has drawn criticism from researchers, advocates, and government agencies. The Intergovernmental Panel on Climate Change (IPCC) found that CCS faces technological, economic, institutional, ecological, environmental and sociocultural barriers.²⁹ The agency found that solar and wind energy supplies are three times more likely to contribute to net zero emissions by 2030 than fossil fuels with CCS.³⁰ A study from Stanford University analyzed the social cost of CCS, including air pollution, potential health problems, economic costs, and contributions to climate change, and found that CCS fared no better than than a fossil fuel plant operating without CCS.³¹ This end result is in part because the electricity needed to operate CCS predominately comes from fossil fuels and conventional measures of CCS effectiveness lack upstream or lifecycle emissions considerations. The Stanford study ultimately concluded that the best solution to sustained carbon reduction and social impacts is to focus on replacing fossil fuels with renewable energy.³²

The International Energy Agency (IEA) has cited CCS's history of "unmet expectations" and "underperformance."³³ After the 2008 global financial crisis, more than \$8.5 billion in public support was made available for CCS projects and ultimately less than 30% of the funding was spent. The IEA cites reasons for this gap being, one-off capital grants, the absence of measures to address long-term liability for stored CO₂, high operating costs, limited social acceptability and vulnerability of funding programs and external budget pressures all leading to project cancellations.³⁴ The agency called on the industry to prove that CCS technologies can operate at scale.³⁵ Others think carbon capture technologies are a false solution to the climate crisis and that CCS ultimately delays the transition away from fossil fuels.³⁶ In 2021, over 500 US and Canadian organizations called on leaders from both countries to reject CCS technologies by ending subsidies and permits for new CCS projects in an open <u>letter</u> to national leaders.³⁷

Case study of private equity's role in carbon capture: Rio Grande LNG- Global Infrastructure Partners/BlackRock

Despite touting itself as committed to "facilitating the global energy transition", GIP (owned by BlackRock) invested in Phase 1 of the proposed Rio Grande LNG (RG LNG) export terminal in 2023 with a \$3.5 billion commitment from GIP Fund V.^{38,39} If fully built, the RG LNG eight liquefaction trains are estimated to emit over 29 million tons of carbon dioxide equivalent every year, or the equivalent of the emissions from 76 natural gas-fired plants annually.⁴⁰ Additionally, a study from a group of leading enviornmental organizations found that the facilities could degrade local fishing, shrimping and natural tourism industries, putting communities' livelihoods at risk.⁴¹

As a result of a past successful community lawsuit finding that the Federal Energy Regulatory Commission (FERC) did not properly consider the impact of RG LNG on the climate, NextDecade, RG LNG's parent company, added a CCS project to their RG LNG application in 2021.⁴² NextDecade used the announcement of the CCS project to advertise the project as the "first and only U.S. LNG project offering CO_2 emissions reduction of more than 90 percent" on the company's website.⁴³

Three years later, NextDecade withdrew the CCS project from RG LNG's environmental review at FERC.⁴⁴ The company concluded "the CCS project at RG LNG is not sufficiently developed to allow FERC review to continue at this time" in a company press release about the decision to remove the CCS project from their environmental permit application.⁴⁵



As of January 2025, 59 percent of GIP's energy portfolio companies was invested in fossil fuels, and the firm earned a C on the 2024 Private Equity Climate Risks Scorecard.⁴⁶

Carbon Trading

Carbon trading as a business opportunity became popularized when the concept was included at the 1997 Kyoto Protocol, commodifying carbon emissions.⁴⁷ With the creation of a new industry came new opportunities for investment and the potential to profit from carbon emissions.⁴⁸The carbon offset industry, championed by Western policymakers⁴⁹, has grown into a \$1 trillion industry.⁵⁰ However, there is very little regulation, which has allowed businesses that develop carbon offset programs to create their own practices and standards. This lack of oversight has resulted in an opaque industry that allows businesses to make varying claims about carbon trading effectiveness to reduce emissions and positively impacts the climate and local communities.⁵¹

Numerous academic and scientific studies, including from the University of California Berkeley⁵² and University of Pennsylvania,⁵³ have raised issues with the effectiveness of voluntary carbon trading programs. Part of the problem with carbon offsets is the apple to orange comparison of fossil carbon (carbon released from burning fossil fuels) and biotic carbon cycles (carbon stored in trees and plants).⁵⁴ Trees absorb carbon slowly over their lifespans, but fossil fuels release emissions quickly, faster than they can be reabsorbed by tree planting.⁵⁵ Secondly, fossil carbon is much more concentrated than biotic carbon, making it difficult for reforestation projects to absorb all the concentrated carbon released from combustion of fossil fuels.⁵⁶

A 2023 investigative report by *The Guardian* found that one of the world's leading carbon offsets certifiers and standard-setters, Verra, was selling carbon credits that were largely useless.⁵⁷ The study found that more than 90 percent of their rainforest offset credits did not represent genuine carbon reductions, despite having large corporate customers such as Disney, Shell, and Gucci.⁵⁸

In addition to the uncertain effectiveness of the carbon trading industry's ability to truly offset emissions, there are documented risks to communities where reforestation projects occur.⁵⁹ Often carbon credit project developers are private companies which operate globally and may not be connected to local communities where the mitigation projects are implemented.⁶⁰ With the lack of oversight in the industry generally, and the fact that it is common for projects to be sited in communities that have experienced historic marginalization and colonization, tracking economic benefits to local communities can be challenging.⁶¹ A 2024 report by Human Rights Watch looked closely at the impacts of Cambodia's largest carbon offset project on Indigenous people living in the area. The investigation found that the people's rights to free, prior, and informed consent was violated by project developers.⁶² Families also describe being forcibly evicted by project staff and in some cases people were arrested and detained following the evictions.⁶³ Although no binding benefit sharing agreements were enacted for this project, project developers spokespeople claimed the carbon credits from this site have benefitted the local community.64 The difficulty to accurately track community benefits and potential community harms creates a risk for companies and investors looking to invest in carbon credits.

Case study of private equity's role in carbon trading: ClimeCo - Warburg Pincus

In 2022, Warburg Pincus, along with the Heritage Group, invested in ClimeCo, a company "focused on developing and trading environmental commodities and advising clients on emerging environmental market solutions".⁶⁵ One of ClimeCo's offset projects is "discrete parcels of degraded land that is owned by small and poor farmers/tribal leaders" across three states in India.⁶⁶ Offsets for this project cost \$12.50 per metric ton and are certified using the Verra Standard, which the Guardian article cited above found to be largely illusory.⁶⁷ According to a monitoring report, the project partner for the reforestation effort was Mangalam Timber Products Limited, a timber manufacturer,⁶⁸ who was able to both use the carbon credits as well as purchase harvested timber from the project.69

One of ClimeCo's newest ventures is their "ClimeCo Certified Product Program" where companies can gain a certification, created by ClimeCo, which allows them to "confidently communicate their environmental actions" to "eco-conscious consumers".⁷⁰

As of January 2025, 93 percent of Warburg Pincus's energy portfolio companies are invested in fossil fuels, and the firm earned a C on the 2024 Private Equity Climate Risks Scorecard.⁷¹

Gas Certification

Certified natural gas, also called responsibly sourced gas by the fossil fuel industry, is methane gas that has received a designation as having been produced in a way that mitigates emissions and limits environmental and social impacts.⁷² The industry is taking a page from other industries that label their products as "green" or "sustainable" for a premium price and feel good approach to business. Third party natural gas certification standards were first used in 2018 with utilities buying gas sold with a certificate of being "responsible".⁷³

Certified gas, much like carbon trading schemes, exist in an unregulated and largely privatized environment. There is no standardized definition for certification, and standards can differ in their approach to how they measure environmental and social impacts with little to no transparency into their methodologies.⁷⁴ This industry greenwashing campaign caught the attention of seven US Senators who sent a letter to the FTC in February 2024 asking the FTC to address false or misleading claims from gas certification companies.⁷⁵

Even with opaque standards and effectiveness, certified gas can come with a higher price tag for consumers and ratepayers. A 2023 report by the Revolving Door Project found examples from across seven states of utilities petitioning their regulatory bodies to pass increased costs from premium "certified" gas to ratepayers.⁷⁶ One example is Virginia Natural Gas, which attempted to pass on a 15 percent premium to ratepayers for buying this special gas, of which the gas utility was approved for a 5 percent increase.⁷⁷ In 2023, Virginia Natural Gas claimed to be supplying around half of the utility's 300,000 customers with certified natural gas, which the utility calls "next generation natural gas".⁷⁸ The utility began purchasing certified natural gas in 2019 from Southwestern Energy⁷⁹, which was later renamed to Expand Energy after a merger in 2024,⁸⁰ a natural gas producer who uses Project Canary to certify their extraction sites.⁸¹

Case study of private equity's role in gas certification: Project Canary - Quantum Capital Group

Project Canary, a portfolio company of Quantum Capital Group (Quantum) since 2021,⁸² is a software platform that measures emissions.⁸³ Project Canary is specifically a portfolio company in Quantum's Innovation Fund (QIF).⁸⁴ QIF's investment focus is "companies that provide the 'picks and shovels' to support the energy transition, decarbonization and sustainability sectors, not energy transition projects or processes".⁸⁵ Project Canary claims to assess upstream and midstream natural gas operations using itsTrustWell Standard and Low Methane Rating Protocol.⁸⁶

In 2023, a report by Oil Change International and Earthworks revealed shortcomings in the company's operations after fact-checking emissions claims at Project Canary certified projects by using optical gas imaging (OGI). Researchers revealed 22 pollution events at 77 Project Canary certified sites and found that Project Canary monitors consistently failed to capture pollution events captured by the OGI cameras used by researchers.⁸⁷ In addition to these shortcomings in accurately measuring methane emissions, the report outlined potential conflicts of interest between the companies Project Canary certifies and its private equity backer Quantum. One such example is Tug Hill Operating and XcL Midstream Operating which both developed partnerships with Project Canary in 2021.88 All

three companies, Project Canary, XcL and Tug Hill, were backed by Quantum at the time.⁸⁹ When Quantum sold Tug Hill and XcL in 2023, one of the selling points of these companies was how they are "supporting the ongoing transition to cleaner energy sources".⁹⁰

As of January 2025, 95 percent of Quantum's energy portfolio companies are invested in fossil fuels, and the firm earned a D on the 2024 Private Equity Climate Risks Scorecard.⁹¹

Hydrogen

Using hydrogen gas for electricity generation has gained popularity as an emerging technology in recent years with terms such as "hydrogen economy"⁹² being coined by the industry. The process of hydrogen production generally involves splitting a water molecule into hydrogen and oxygen and using the resulting hydrogen gas as a fuel source. The major problem with hydrogen production is that splitting water molecules is extremely energy intensive, so finding ways to produce hydrogen without creating excess emissions or using more energy than the hydrogen produces has been a technical challenge to the fuel's effectiveness.

In recent years, the terms blue and green hydrogen were created to signal hydrogen production made in a carbon-neutral way. Blue hydrogen generally means hydrogen created from combusting natural gas coupled with a CCS project to capture emissions. Green hydrogen means hydrogen created from electricity generated by renewable energy sources.⁹³

Independent research has largely reported findings that are skeptical of hydrogen becoming a scalable, clean energy source for electricity generation⁹⁴, though green hydrogen may have a future for heavy industrial and other hard-to-abate sectors.⁹⁵ Regardless, fossil fuel-backed research and lobbying have kept the technology on the radar of U.S. policymakers as a catch-all solution



to the climate crisis.⁹⁶ In 2023 alone, more than 200 companies and organizations lobbied the federal government on issues related to hydrogen, especially blue hydrogen which continues the need for natural gas drilling. That same year the fossil fuel industry spent \$41 million on federal lobbying efforts.⁹⁷ The fossil fuel industry has come out as a supporter of hydrogen production as a means to continue building out fossil fuel infrastructure with a promise of converting the fossil fuel assets to hydrogen production, distribution, and storage infrastructure.⁹⁸

A 2021 Cornell University study found that "the greenhouse gas footprint of blue hydrogen is more than 20 percent greater than burning natural gas or coal for heat and some 60 percent greater than burning diesel oil for heat".⁹⁹A year later, the API commissioned their own study, which the trade group then cited in public comments to the Department of Energy, claiming that blue hydrogen could "eliminate 180 million metric tons of greenhouse gas emissions on average per year through 2050 and save over \$450 billion cumulatively through 2050 when hydrogen incentives are uniformly provided on a per ton of GHG emissions

reduced".¹⁰⁰ Despite the opposing conclusions from the scientific community refuting API's claims, the federal government has issued billions of dollars in tax credits for "sustainable" hydrogen projects even if those projects rely on fossil fuels.¹⁰¹

Case study of private equity's role in hydrogen: Escalante H2 Power - Blackstone

An example of the greenwashing happening with blue hydrogen is the Escalante H2 Power Project (EH2 Power). Tallgrass Energy, a portfolio company of Blackstone¹⁰², acquired a 75 percent interest in the project in 2021, which plans to retool the Escalante Generating Station, a coal-fired power plant, into a hydrogen plant.¹⁰³ The project is estimated to need about 80 billion standard cubic feet of fossil gas a day.¹⁰⁴ Project developers plan to store excess carbon underground with funding from federal tax credits.¹⁰⁵ In addition, the project includes plans to build a new hydrogen pipeline to Arizona, across lands owned by the Navajo Nation.¹⁰⁶

The project has received mixed reviews from Tribal members in the Navajo Nation. Navajo activist Jessia Keetso of the organization Tó Nizhóní Ání expressed concerns for people living near the proposed pipeline route, expressing concerns for how leaks and spills would be monitored and reported to communities without internet access.¹⁰⁷ Capital and Main journalist Jerry Redfern described the proposed project in historical context saying, "in the last 100 years, there's been near-constant mineral extraction of all types on Navajo lands: coal, uranium, vanadium, oil, gas. And it has never brought a great deal of prosperity."¹⁰⁸ The project was seeking \$1.25 billion in federal funding from the H2Hubs program under the US Infrastructure and Jobs Act, but did not make the final list of funding recipients.¹⁰⁹

As of January 2025, 70 percent of Blackstone's energy portfolio companies are invested in fossil fuels, and the firm earned a C on the 2024 Private Equity Climate Risks Scorecard.¹¹⁰

Biomass

Biomass fuels are solid biofuels created from the burning of crop waste, wood and other plant resources.^{III} Although there are some advantages to using biomass in small-scale operations, feedstock for large-scale applications pose a variety of challenges including but not limited to regional and seasonal availability of biomass, storage, low energy density compared to traditional fuels, acquisition costs of feedstock, land use issues, deforestation, inconsistent regulation, among others.¹¹²

Outside of issues with creating a sustainable business model for large-scale biomass implementation, there is a mixed understanding of the environmental impacts of burning biomass. Once thought to be a carbon-neutral fuel, the reality is much more nuanced.¹¹³ Industry groups have advocated that new crops will re-absorb carbon released from burning biomass. However, research out of the University of Pennsylvania shows that it may take decades or even centuries for new crops to absorb an equivalent amount of carbon dioxide released from combustion, casting doubt on the fuel's effectiveness as a climate solution.¹¹⁴

Case study of private equity's role in biomass: Graanul Invest - Apollo

Apollo Global Management (Apollo) became a majority stakeholder in Graanul Invest (Graanul) in 2021.¹¹⁵ Graanul is the world's leading biomass producer, making wood pellets and creating electricity and heat from forestry and wood industry by-products, predominantly in Europe.¹¹⁶

Graanul faced financial hardships after a wood pellet price dispute with one of the company's largest customers, Drax.¹¹⁷ Drax operates a series of biomass power plants in the UK.¹¹⁸ During the war in Ukraine, Graanul faced higher production costs due to feedstock scarcity and was unable to pass those costs on to its customers, operating at a loss during price negotiations.¹¹⁹ Graanul suffered a credit downgrade as a result, with the S&P reporting the company's earnings before interest, taxes, depreciation and amortization (EBITDA) fell by almost 60 percent in the first nine months of 2023 and an expected debt to EBITDA ratio of about 10x at the end of 2023.¹²⁰ A year later the company rebounded to 6.0x debt to EBITDA ratio and earned a B rating with a negative outlook.¹²¹

Market instability on top of the private equity business model creates real risk for investors looking to invest in biomass as a long-term transition solution. Coupled with unclear negative emissions impact, and other systemic issues, it seems biomass has an unclear path forward for investors looking to meaningfully address climate-related financial risk.

As of January 2025, 60 percent of Apollo's energy portfolio companies are invested in fossil fuels, and the firm earned a B on the 2024 Private Equity Climate Risks Scorecard.¹²²

Renewable Natural Gas

Renewable Natural Gas (RNG), also known as biomethane or biogas, is created when anaerobic bacteria break down bio waste, producing methane.¹²³



RNG can be created by processing bio waste from landfill, sewage, industrial waste treatment facilities, or animal waste, and is fully interchangeable with fossil-based natural gas once processed.¹²⁴ As of 2023, there were 532 operational landfill gas projects, 470 livestock digester systems and about 1,200 wastewater treatment plants with anaerobic digesters in the US.¹²⁵ According to a 2023 McKinsey report, RNG represented less than 1 percent of the methane gas supply in the US and at a maximum could represent 5-20 percent of current gas demand if every opportunity was pursued.¹²⁶ Additionally, concentrated methane leaking from RNG projects is a major concern, with research pointing to an expected leakage rate as high as 15%.¹²⁷ While RNG could be a short term solution to transitioning from fossil based gas, limited feedstock, costs including to clean RNG to standards needed for pipeline injection, risk of methane leaks, and transportation costs may limit the feasibility of the fuel.128

Case study of private equity's role in renewable natural gas: Viridi- Warburg Pincus

Residents in Brunswick, Maine, a town of about 22,000 people,¹²⁹ have been voicing concerns about

a proposal for a gas plant using anaerobic digesters to make pipeline-quality gas from wastewater.¹³⁰ Warburg Pincus-backed Viridi plans to ship water laden with per- and polyfluoroalkyl substances (PFAS) from out of state to the small town, which just suffered a large spill of over 1,450 gallons of PFAS-contaminated foam from a Naval Air Station nearby the site of the proposed RNG facility.¹³¹ PFAS is the scientific name for a series of chemicals used in a variety of products that do not degrade easily in the environment and causes a variety of human health problems.¹³² Exposure to certain levels of PFAS may lead to reproductive effects, developmental effects in children, increased risks of some cancers, impacts to the immune system, hormonal interference, increased cholesterol and/or risks of obesity.133

At a January 2025 town council meeting, members of the public spoke for over an hour, expressing concerns with the new project.¹³⁴ The town is still suffering from the discharge of PFAS-containing foam into the sewer system the summer prior, one of the worst chemical discharges in state history.¹³⁵

RISKS AND INVESTOR RESOURCES



Opacity surrounding the private equity industry's potential greenwashing of their energy transition funds and false solutions investments warrant scrutiny from institutional investors. It is critical for institutional investors to stay abreast of the potential risks that investments in false solutions bring to their portfolios.Investors should work with private markets asset managers to ensure that firms are investing in true energy transition technologies, adequately protecting investors from climaterelated financial risk. Due diligence is a crucial component of managing any investment portfolio. The following questions aim to be a resource for institutional investors looking to commit capital to private equity, infrastructure, or real assets managers with energy transition investments. General partner responses to these questions could hopefully provide investors with important information regarding the effectiveness of the industries in their energy transition portfolios.

Questions for Investors About Financial Risks of False Solutions Industries

- What is the proposed timeline for the project to be operational? How does that align with timelines for portfolio-wide emissions reductions?
- 2. Has there been independent, non-industry related, analysis of the carbon emissions reductions associated with this technology
- 3. What is the market outlook for this industry? Does the project have established supply and demand/ buyers at scale?
- 4. What are the regulations pertaining to this technology where it is located? Locally and nationally?

Alignment of energy transition funds with a 1.5 degree warming scenario/climate change mitigation goals

- When considering an investment in an energy transition fund, scrutinize what the GPs target industries are for investment of those funds. Do those industries support or prop up existing oil and gas operations, making fossil fuels more difficult to exit?
- 2. What transparency around the effectiveness of emissions reductions or renewable energy generation are GPs willing to provide to LPs for their own reporting of climate goals
- 3. To what extent does a particular transition fund aim to focus on false solutions industries versus renewable energy generation?
- How do investments in energy transition funds align with the existing Climate Standards for Private Markets Investors?

With adequate due diligence, investors can play a key role in ensuring that energy transition funds and solutions truly address climate based financial risks - solutions that reduce emissions and support the retirement of fossil fuels.

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