

2026 Private Equity Climate Risks Scorecard

APPENDIX C: SCORECARD METHODOLOGY

Indicators

The five indicators are (1) the number of fossil fuel portfolio companies as of the end of June 2026; (2) the share of fossil fuel companies in the energy portfolio (relative to renewable companies); (3) the estimated annual carbon dioxide emissions from upstream operations, LNG terminals, LNG tankers, coal terminals, fossil fuel pipelines, and biomass, gas, oil, and coal-fired power plants; (4) the share of fossil fuel-based power generation relative to renewable power generation; and (5) the alignment with the Climate Standards for Private Equity. The first four indicators allow us to better understand the extent and impact of the firms included in this report across the portfolio exposure and contribution to climate change dimensions. The fifth indicator, covering the commitments dimension, is a qualitative metric based on a set of 27 sub-standards that private equity asset managers should implement to reduce climate, environmental, and financial risks associated with their current and future energy investments. The sub-standards are grouped into the following five primary standards: alignment with science-based climate targets to limit global warming; disclosure of fossil fuel exposure, emissions, and impacts; reporting a portfolio-wide energy transition plan; integrating climate and environmental justice; and providing transparency on political spending and climate lobbying. These indicators were selected by a combination of expert opinion and analysis and the limited relevant and consistent data available for the private equity industry—which operates with minimal disclosure requirements regarding its portfolio holdings at the fund level.¹

Normalization

The values for the indicators were normalized using a min-max method. This is a common method frequently used in composite indices, including prominent measures like the Human Development Index,² when data is expressed in different units of measurement (e.g., percentages, number of companies, metric tons). The min-max normalization converts the indicators into values ranging from 0 to 1 by subtracting the minimum possible value for that indicator and dividing it by the range of the indicator values. This enables us to compare “apples to apples.” The selected minimum and maximum goal posts for each indicator are established as shown in Table 1:

Table 1: Minimum and Maximum Values For Each Indicator

<i>Indicator</i>	<i>Minimum</i>	<i>Maximum</i>
Number of Fossil Fuel Companies	0	23
Share Of Fossil Fuel Companies In Energy Portfolio (%)	0	100
Total Emissions (tCO ₂ e) ³	0	473,333,063
Share of Fossil Fuel-Based Power Generation Relative to Renewable Power Generation (%)	0	100

¹ See footnotes 28-30 at p. 10.

² For examples see: Yang, Lin (2014), , “[An Inventory of Composite Measures of Human Progress](#),” UNDP Human Development Report Office; United Nations Development Programme (1990), “Human Development Report 1990: Concept and Measurement of Human Development,” <http://www.hdr.undp.org/en/reports/global/hdr1990>.

³ Total emission of assets within the scope of this report. See “Emissions Estimates” below.

Alignment with the Climate Standards for Private Equity	0	54
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The justification for establishing zero as the minimum possible value for each of the indicators is that these companies potentially could have a fossil fuel-free energy portfolio with no carbon dioxide emissions if they chose to do so and could be completely aligned with the set of climate standards.

Since the potential number of fossil fuel portfolio companies and carbon dioxide emissions that each private equity firm could have is unlimited, the maximum values for those indicators are set to the largest observed values from the sample of firms in this report (23 companies and 473,333,063 metric tons, respectively). The maximum value of 100 percent is set for the share of fossil fuels in the energy portfolio because the private equity firms could potentially have their entire energy portfolio composed of fossil fuel companies. The maximum value of 100 percent is set for the share of fossil fuel-based power generation relative to renewable power generation because the private equity firms could potentially generate all of their power through fossil fuel-based power generation.

Before normalizing the indicator capturing alignment with the set of Climate Standards for Private Equity, we first evaluated each firm's compliance with each of the sub-27 standards under the five primary standards (see Appendix B) and scored them on the following scale (see Table 2):

Table 2: Scoring Rubric for Climate Standards

Climate Standard Alignment Progress	Score
No known commitments to accomplish the Private Equity Climate Standard	0
Partial policies to meet the Private Equity Climate Standard	1
Alignment with Private Equity Climate Standard	2

Thus, for the Climate Standards for Private Equity indicator, the maximum possible score is 54 (27 sub-standards multiplied by 2, indicating complete alignment with the sub-standards) and the minimum possible value is

0 (indicating zero alignment with any of the sub-standards). To make it easier for readers we present the alignment with the Climate Standards in the firms' summaries above as the percentage of the total possible points (score/54).

Technically, we can express the normalization of the fossil fuel holdings and emissions indicators as:

$$I_c^q = \frac{x_c^q - \min(x_q)}{\max(x_q) - \min(x_q)}$$

where:

I_c^q is the normalized value of indicator q for private equity company c ;

x_c^q is the actual value of indicator q for company c ;

$\min(x_q)$ is the minimum potential value of the indicator q across all private equity firms;

and,

$\max(x_q)$ is the maximum observed/potential value of the indicator q across all private equity firms.

Unlike the other indicators, for the indicator capturing alignment with the Climate Standards, a higher score is more desirable—i.e., the higher the score, the more in compliance with the standards. In order to maintain consistency in the directionality with the other indicators (where a larger value represents a harmful effect of a firm's portfolio), the standards indicator is then normalized by:

$$I_c^q = 1 - \frac{x_c^q - \min(x_q)}{\max(x_q) - \min(x_q)}$$

The directionality of the Climate Standards indicator is reversed during the normalization, meaning that the normalized indicator is expressing the degree to which the private equity firms are *out* of compliance with the set of standards. In other words, a normalized value of 1 means that the company is not complying with any of the standards and the closer to a normalized value of zero, the more the company is in alignment with the standards.

In calculating a composite score, each indicator is weighed equally.

Aggregation

The normalized indicators were aggregated by a simple arithmetic mean to arrive at the final score for each private equity company. Using the arithmetic mean is both one of the most frequently used methods in the construction of composite indices,⁴ and it offers us the advantage of avoiding scores of zero.⁵

The arithmetic mean is the sum of the numerical values of each normalized indicator, divided by the number of indicators.

Here are the results of the aggregation process for each private equity firm (see Table 3):

Table 3: Private Equity Aggregated Score And Grade

Private Equity Firms	SCORES (arithmetic mean)	Grade
Apollo Global Management	0.36	B
ArcLight	0.69	D
Ares Management	0.45	C
BlackRock GIP	0.57	C
Blackstone	0.59	C
Brookfield/Oaktree	0.54	C
EIG	0.73	D
Encap/Encap Flatrock	0.60	C
Energy Capital Partners	0.56	C

⁴ Yang (2014).

⁵ Because the geometric mean requires the product of the indicators, in every instance where we either do not have data or we have a value of zero that could be dependent on lack of information for that indicator (like emissions), using the geometric mean will yield a total score of zero. But such zero would be attributed to the lack of information, not progress towards mitigating climate change.

EQT	0.35	B
I Squared	0.60	D
IFM	0.46	C
Kayne Anderson	0.59	C
KKR	0.65	D
MacQuarie	0.52	C
Quantum Capital Partners	0.65	D
Stonepeak Infrastructure Partners	0.45	C
The Carlyle Group/NGP	0.67	D
TPG	0.24	B
Warburg Pincus	0.59	C

The scale for the grade is as follows (see Table 4):

Table 4: Private Equity Score Ranking Scale

Ranking Scale
F = > 0.80
D = 0.61 - 0.80
C = 0.41 - 0.60
B = 0.21 - 0.40
A = 0 - 0.20

The Carlyle Group/NGP Capital Partners Example

To further illustrate the scorecard methodology, here is an example of how the score for Carlyle/NGP was calculated.

- Table 5 shows where Carlyle/NGP stands on the five indicators:

Table 5: Carlyle/NGP's Assessment

<i>Number of Fossil Fuel Companies</i>	<i>% Of Fossil Fuels In Energy Portfolio</i>	<i>Share of Generation from Fossil Fuels (%)</i>	<i>Total Est. Annual tCO2e Emissions</i>	<i>Alignment with Climate Standards</i>
18	72%	74%	102,211,056	7 out 54 (13%)

Carlyle/NGP made partial progress on private equity climate sub-standard: “Phase out existing coal power investments by 2030,” because it has no coal power investments at present. It has disclosed its operational emissions,⁶ which partially meets Standard 2.2, “Disclose Scope 1, 2, and 3 (as defined by the GHG Protocol and the Partnership for Carbon Accounting Financials [PCAF]) in absolute and intensity terms as well as other climate impacts, environmental violations and litigation, and climate-related community impacts for its entire portfolio,” and it received a score of 1 out of 2 for this sub-standard. 93 percent of portfolio companies Carlyle deems in-scope have Paris-aligned goals, giving it a score of 1 out of 2 for sub-standard 3.1: “Report progress with implementing climate transition plan throughout the firm’s entire portfolio annually, and any adjustments that have been made to original assumptions about the availability of technologies and market conditions” and another 1 out of 2 for sub-standard 3.2: “Report a detailed description of GHG emissions reductions targets, and metrics on progress toward those targets.” Carlyle reports that it has purchased carbon offsets and describes some of the projects,⁷ giving it a partial score of 1 out of 2 on both sub-standards 3.7 (“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 for any gross emissions during the reporting period”) and 3.8 (“Disclose the registry number and details of the projects underlying any carbon offsets acquired, and whether emissions were purportedly reduced, avoided, or removed. For removal, indicate the expected time period of emissions storage.”) This gave it a total standard metrics score of seven out of a maximum of 54 (or 13 percent). (See complete list of standards in Appendix B).

2. Each indicator was then normalized, according to the process outlined above.

Carlyle/NGP’s estimated annual emissions included in this report is 102,211,056 tCO₂e. The maximum observed within our sample is 473,333,063 tCO₂e by EIG). Thus, Carlyle/NGP’s normalized emissions value is as follows:

$$\text{Normalized Emissions Value} = \frac{102,211,056 - 0}{473,333,063 - 0} = 0.22$$

$$\text{Normalized Climate Standards Value} = 1 - \frac{7 - 0}{54 - 0} = 0.87$$

The normalized values for each of Carlyle/NGP’s indicators are as follows (see Table 6):

Table 6: Normalized Values For Each Carlyle/NGP Indicator

Number of Fossil Fuel Companies	% Of Fossil Fuels In Energy Portfolio	Share of Generation from Fossil Fuels	Total Est. Annual tCO₂e Emissions	Climate Standards
0.78	0.72	0.77	0.22	0.87

3. In the aggregation process, a simple arithmetic mean of the unweighted normalized indicators is calculated:

$$Y_{\text{Carlyle}} = \frac{(0.78 + 0.72 + 0.77 + 0.22 + 0.87)}{5} = 0.67$$

Y_{Carlyle} is the total aggregate score for the private equity firms The Carlyle Group and NGP.

⁶ Carlyle. 2025. “Resilience: The Invisible Edge 2025 Sustainability Report.” p. 39-40
https://www.carlyle.com/sites/default/files/2025-06/Carlyle_ESG_Report_2025.pdf.

⁷ Carlyle 2025. “Resilience: The Invisible Edge 2025 Sustainability Report” p 40 and 55

Portfolio Companies Research

Methodology and Research Process for Portfolio Company Verification (Deals and Companies)

Since private equity firms do not provide comprehensive disclosures of current or former investments, the PECR research team has built a data set based on a variety of sources. We conducted an initial query of energy holdings via the private markets data provider Pitchbook. Researchers then drew on company websites, press releases, SEC and other regulatory filings, and news articles to identify additional companies and build a data set of verified private equity portfolio company investments.

Private equity firms invest in portfolio companies through various 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. The precise nature of each investment arrangement is often not disclosed, but these investments all provide capital to portfolio companies that enable their operations and the associated emissions and environmental impacts. The 20 firms' current energy portfolio reflects the private equity firms' financial interests via any one or more financial strategies listed above to "invest in," "own," or "back" each portfolio company, thereby facilitating the activity of the company and its assets and financing the company's emissions.

Some energy companies have investments from multiple investors, including multiple private equity firms within this data set. For the companies with investments from more than one private equity firm on the list of 20 firms analyzed, those companies were not double-counted in the overall total numbers.

The PECR research team provided each private equity firm with the list of energy companies and fossil fuel assets in their portfolio based on our research. The firms were given the opportunity to provide feedback to ensure our data set is as accurate as possible. Some firms responded with some ownership updates on specific companies and/or assets, while other firms did not respond. The PECR research team incorporated the feedback from the private equity firms that was in line with the methodology of this report and adjustments were made to the data set to reflect that feedback.

Asset Data Research and Sources

GEM Ownership Coverage

Process

PE portfolio companies were matched against entities in the [GEM Ownership Tracker](#), and corresponding assets were pulled into the Private Equity Global Fossil Fuel Asset Tracker.

The GEM Ownership Tracker maps full ownership chains, which allowed PECR researchers to find matches at intermediate levels of ownership.

Asset Classes with GEM Ownership Tracker Coverage

- Coal power plants
- Oil and Gas power plants
- Bioenergy (biomass) power plants
- Coal mines
- Gas pipelines

- Oil/Natural gas liquids pipelines

Assets Without GEM Ownership Coverage

GEM Trackers

Process

PE portfolio companies were matched against the latest ownership data at the immediate owner or parent owner level for the following asset classes (below). Corresponding assets were pulled into the Private Equity Global Fossil Fuel Asset Tracker.

Asset Classes Without Limited, Asset Tracker-Level Ownership Coverage (Immediate Owner and Parent Only)

Asset Classes

- [Upstream oil and gas](#)
- [LNG import/export](#)
- [Coal terminals](#)
- [LNG Tankers](#)

Renewables

In the renewables sector, asset level information is highly fragmented due to the sheer number of renewable installations in comparison to fossil fuel installations, so conducting an asset level research process for renewables was not feasible for our research timeline.

When a PE portfolio company was identified as owning renewables, a variety of online sources were utilized to map out the total operating capacity of renewable energy infrastructure owned by that company. These sources included:

- Company websites
- News articles
- Press releases
- Corporate financial reports
- Government databases

Wherever possible, we aggregated operating renewable energy capacity by:

- Type (solar, wind, geothermal, hydro)
- Country

Emissions

Scope

Private equity firms have impacts on the climate through both their corporate operations and their investment portfolios through direct and indirect emissions.⁸ The investment portfolio typically has far, far greater impacts, and accounts for around 99 percent of emissions. To capture the entire emissions footprint of private equity firm activities, the PECR project believes that scopes 1, 2, and 3 emissions should be disclosed both at the firm level and across the full investment portfolio.⁹

To capture the climate impacts from a PE firm's most carbon-intensive activities, our research activities typically focus on a subset of the investment portfolio: the fossil fuels assets of portfolio companies. We look at the emissions associated with upstream, midstream, and downstream energy infrastructure, including stationary combustion, fugitive emissions, and process emissions from portfolio companies.

This means that there are elements of Scope 1 and 2 emissions from portfolio companies not included, 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 a PE firm's energy and infrastructure portfolio companies calculated by this project do not represent the firm's total emissions, but more than likely represent the majority of portfolio company emissions from that PE firm.

Asset Level Information

Upstream Fossil Fuel Extraction

The upstream oil and gas emissions are calculated utilizing [RMI's OCI+ database](#) on oil and gas supply chain emissions. Upstream and embedded fuel emissions factors by basin are utilized. Where a specific basin is not available in the database, we source the closest nearby basin in the OCI database. When we do not have information on a particular basin owned by the portfolio company, an average of all upstream emissions factors for basins that the PE firm in question is invested in is applied.

Emissions estimates for coal mines were derived from methods utilized by Global Energy Monitor's Global Coal Mine Tracker. The emissions within the embedded coal were counted and estimated using eGRID emissions factors, presuming that the coal would ultimately be burned for power or steel making purposes. Additional methods were used to estimate carbon dioxide and methane emissions from coal extraction activities.

References:

- https://www.gem.wiki/Estimating_carbon_dioxide_emissions_from_coal_mines
- https://www.gem.wiki/Estimating_methane_emissions_from_coal_mines
- <https://www.epa.gov/eGRID>

⁸ UN Principles for Responsible Investment, ERM, and iCI Working Group. 2022. "Greenhouse Gas Accounting and Reporting For the Private Equity Sector." May 2022. <https://www.unpri.org/download?ac=16265>

⁹ Americans for Financial Reform Education Fund, Public Citizen, the Sierra Club, the Ocean Conservancy, and the Sunrise Project. "The Enhancement and Standardization of Climate-Related Disclosure for Investors." Comment on the proposed rule by the Securities and Exchange Commission. 87 FR 21334, Docket ID: SEC-2022-06342, File No. S7-10-22. June 16, 2022. At pp. 139-141. https://ourfinancialsecurity.org/wp-content/uploads/2022/06/SEC_Technical-Comment_June-16.pdf

LNG Terminals

For LNG export terminals, the emissions factor for the LNG liquefaction process is an average of five emissions factors from a 2020 NRDC study on lifecycle emissions of LNG.¹⁰

This same study also included emissions factors for LNG import terminals, which perform the regasification process.

In both instances, we only focused on the process emissions (liquefaction and regasification), and omitted embedded fuel emissions.

Power Plants

For downstream power plants, we collect plant capacity from public sources (such as news articles, financial reports, and company websites) and then apply average emissions factors by plant type from EIA's Electric Power Monthly's "Chapter 6. Capacity" data.¹¹

This results in estimated generation values, which are then used in conjunction with the EPA eGRID emissions factors based on plant type to calculate more accurate emissions estimates.

Where coal plants operators listed coal/biomass co-firing targets, we assumed that no biomass was used at this time.

Pipelines

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 which was applied across midstream assets where utilization factors were not found.¹²

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.¹³

Coal Terminals

¹⁰ Swanson, Christina and Amanda Levin. 2020. "SAILING TO NOWHERE: LIQUEFIED NATURAL GAS IS NOT AN EFFECTIVE CLIMATE STRATEGY". Natural Resources Defense Council. December 2020. Accessed November 29, 2023. <https://www.nrdc.org/sites/default/files/sailing-nowhere-liquefied-natural-gas-report.pdf>

¹¹ U.S. Energy Information Administration. "Electricity Power Monthly." [eia.gov](https://www.eia.gov/electricity/monthly/). Accessed August 2022. <https://www.eia.gov/electricity/monthly/>

¹² <https://globalenergymonitor.org/research/gas-index-report-2020>

¹³ 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.

For coal terminals/storage, the emission factor for fugitive methane was an average from 52 coal sources across the U.S. 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.¹⁴

For biomass storage, the emissions factor was sourced from a 2018 article on the subject published in Renewable Energy and Sustainable Energy Reviews.¹⁵

LNG Tankers

Several portfolio companies were identified as owners of LNG carrier ships. The [GEM LNG Carrier Tracker](#) served as a starting point for connecting these portfolio companies with fleets of ships. From there, the IMO number (a general ship identifier) was cross referenced against:

- Climate Trace
<https://climatetrace.org/>
- EU THETIS-MRV emissions reporting
<https://mrv.emsa.europa.eu/#public/emission-report>

Annual emissions estimates for individual ships were then pulled based on their recent activity.

Anti-Double Counting

Explanation

Given that this project mapped asset ownership across upstream, midstream, and downstream categories, and that this project sought to estimate greenhouse gas emissions figures at the asset level, careful steps were taken to prevent the double counting of emissions for individual firms and the emission total across all firms.

All upstream emissions figures were calculated using emissions factors from RMI's OCI+ database (<https://ociplus.rmi.org/>), which included complete supply chain emissions:

- Upstream extraction activities
- Fugitive and operational emissions from midstream activities
- Embedded emissions from the ultimate downstream use

Midstream emissions were calculated to capture operational and fugitive emissions only. Downstream emissions were calculated to capture the release of embedded emissions from the fuels themselves. Therefore, if a firm owned upstream assets and either midstream or downstream assets (or both), there could be risk of double counting emissions.

Protocols

To prevent double counting, the following protocols were followed:

1. Wherever there were no upstream emissions, the recorded emissions estimate was simply the summed downstream and midstream figures.

¹⁴ Ontario Ministry of the Environment. "Guideline for Greenhouse Gas Emissions Reporting." February 2012. Accessed March 2023

¹⁵ Sahoo, Kamalakanta, E.M. (Ted) Bilek, Sudhagar Mani. "Techno-economic and environmental assessments of storing woodchips and pellets for bioenergy applications." Renewable and Sustainable Energy Reviews. Volume 98, December 2018. At pp. 27-39.

2. Wherever the upstream emissions figures of a given firm was larger than downstream and midstream combined, the upstream figure was solely recorded for the firm, assuming that the downstream and midstream emissions could conceivably be included in that upstream figure.
3. If the downstream and midstream sum was larger than the upstream sum, then the total estimate was calculated by adding the estimated upstream process emissions only to the sum of the downstream and midstream figures.

Updates to Anti-Double Counting Methodology from 2024 to 2026

As the 2024 Scorecard had a unique scope including emissions only for upstream, coal and LNG terminals, double counting was limited to instances where an upstream oil and gas asset and an LNG terminal in the same basin were owned by the same private equity firm. In that iteration, the anti-double counting protocol identified if certain downstream assets — specifically, LNG terminals — were located in an oil and gas basin in which the terminal's private equity owner also maintained upstream extraction activities. In those cases, because of the embedded emissions described above, the LNG terminals' emissions were subtracted only from that firm's upstream emissions for the basin where they applied. No such overlap existed for coal assets in the dataset so adjustments were limited to LNG assets. Adjustments were made in those specific circumstances for each firm. The adjustments were totalled across all the firms and subtracted from the raw emissions total to get a final emissions figure for all firms.

The 2026 Scorecard includes a much broader set of assets: all upstream, midstream and downstream assets for the 20 firms in the Scorecard. Given the large increase in the number of fossil fuel assets, from 204 assets in 2024 to 1,430 fossil fuel assets in 2026, identification of such geographically discrete instances of ownership of upstream, midstream and downstream assets within the same basin owned by an individual firm was not feasible given the research team's timeframe and capacity. Therefore, a methodology was created to estimate where upstream emissions may be double counted within a firm's midstream and downstream portfolios.

The updated methodology relies on assumptions in order to come to consistent, replicable emissions figures across a more expansive dataset. This results in a more conservative estimate, stemming from higher adjustments. It assumes that a firm's holdings are fully vertically integrated across their upstream, midstream, and downstream operations, regardless of geography, and that the carbon molecules from its upstream extraction necessarily flow into its mid- and downstream assets. It also assumes that the products extracted from a firm's upstream operations remain in that firm's supply chain.

Each firm's emissions were adjusted based on the protocol in the 2026 Methodology. Then the adjustments were totalled across all the firms and subtracted from the raw emissions total to get a final emissions figure for all firms.

Energy Generation

Process

Energy generation estimates by asset class (coal plant, solar generator, etc.) were calculated using capacity factors sourced from:

- U.S. EIA
 - <https://www.eia.gov/electricity/>
- International Energy Agency (IEA)
 - <https://www.iea.org/world/electricity>
- Ember
 - <https://ember-energy.org/data/yearly-electricity-data/#methodology>
 - <https://ember-energy.org/latest-insights/global-electricity-review-2026/>

Wherever possible, country level granularity was included in these capacity factors. If country level information was not possible, then global average capacity factors were applied.

APPENDIX D: PRIVATE EQUITY CLIMATE STANDARDS SCORING RUBRIC AND ADDITIONAL BACKGROUND

Climate Standards Rubric and Scores: [Click to View](#)

Additional Background on Private Equity Climate Standards

1. ALIGN WITH SCIENCE-BASED CLIMATE TARGETS TO LIMIT GLOBAL WARMING:

a. Immediately Cease Fossil Fuel Expansion

- Immediately discontinue all new financing of or investment in new fossil fuel companies or projects throughout the value chain.¹⁶

b. Cease Flaring And Venting

- Flaring by the oil and gas industry is a major source of climate pollution, as it releases pollutants such as carbon dioxide, black soot, and methane.¹⁷ Methane has more than 80 times the warming power of carbon dioxide over the first 20 years after it reaches the atmosphere and it is responsible for at least 25 percent of global warming today.¹⁸ Reducing flaring is among the fastest and most impactful ways to cut global greenhouse gas emissions, though it is critical that the practice is not replaced with venting, which would have even worse climate consequences. For natural gas upstream or midstream assets, end natural gas flaring and venting, and eliminate all fugitive emissions.¹⁹

c. Commit to achieve Fossil-Free Energy Portfolio By 2030

- Given that private equity typically own portfolio companies for a relatively short holding period,²⁰ ensure that all energy holdings are fossil-free by 2030.

d. Phase out existing coal power by 2030

¹⁶ In compliance with IEA Net Zero 2050 1.5 degrees Celsius scenario analysis. By this, we mean asset managers should not expand beyond their current fossil fuel portfolios through new acquisitions, new construction, or add-ons by existing or newly acquired portfolio companies.

¹⁷ Howell, Andrew, Dominic Watson, Andrew Baxter, and Gabriel Malek. 2021. Review of The Burning Question: How to Fix Flaring. Edf.org. Environmental Defense Fund. October 21, 2021. <https://business.edf.org/wp-content/blogs.dir/90/files/ESG-by-EDF-Flaring-Report-Book-V2-Reduced.pdf>; Oliveria Bredariol, Tomás de. 2023. Review of Gas Flaring. Iea.org. International Energy Agency. 2023. <https://www.iea.org/energy-system/fossil-fuels/gas-flaring>.

¹⁸ Environmental Defense Fund. 2021. "Methane: A crucial opportunity in the climate fight." Accessed August 16, 2022. <https://www.edf.org/climate/methane-crucial-opportunity-climate-fight>.

¹⁹ Despite pledges to reduce flaring, globally the practice has continued to rise. However, the United States has made significant progress, per the World Bank, and asset managers should continue to make commitments to eliminating flaring. <https://www.worldbank.org/en/programs/gasflaringreduction/publication/2026-global-gas-flaring-tracker-report> For example, in 2020, Alliance Bernstein, CalSTRS, and Legal and General Investment Management endorsed ending routine flaring in Texas by 2025, while BlackRock has called for nearly eliminating flaring by 2025. Source: Crowley, K. 2020. "Investment Giants Urge Texas To End Most Natural Gas Flaring." *Bloomberg*. September 4, 2020, <https://www.bloomberg.com/news/articles/2020-09-04/investment-giants-urge-texas-to-end-most-flaring-of-natural-gas>; Watson, D., LaMair, E., "Investor Guidance on EPA Proposed Standards for Oil and Natural Gas Methane Emissions," Environmental Defense Fund, December 2, 2021, <https://business.edf.org/files/Investor-Guide-to-Commenting-on-EPA-Methane-Rule-Proposal.pdf>.

²⁰ S&P Private equity reports longer holding periods in 2025, Dec. 22, 2025 <https://www.spglobal.com/market-intelligence/en/news-insights/articles/2025/12/private-equity-buyouts-record-longer-holding-periods-in-2025-96348743>

- The urgency to limit global warming to was heightened when the World Meteorological Organization confirmed that global temperature had breached the Paris Agreement's lower limit of 1.5C in 2024,²¹ while global warming has significantly accelerated,²² global greenhouse gas emissions continue to rise,²³ and the International Energy Agency predicts rising fossil fuel use before a peak sometime before 2030.²⁴ Research published in 2019 found that a pathway that limits warming to 2 degrees Celsius would allow for a remaining carbon budget of only 50% of the emissions produced by already existing and proposed energy infrastructure at that time and fossil fuel expansion has continued at a torrid pace since that time.²⁵ United Nations Intergovernmental Panel on Climate Change's (IPCC) scenarios that limit warming to 1.5 or 2C require steep decreases in the use of coal globally by 2035, with wealthy countries needing to phase it out more quickly.²⁶ Asset managers and owners are also advised to end all new fossil fuel exploration and production and shift towards renewable energy.²⁷ Thus, private equity managers should align with Paris-aligned IPCC pathways²⁸ on coal and begin decommissioning oil and gas power plants and pipelines, and cap exploration and production infrastructure and other related fossil fuel assets no later than 2030.²⁹
- e. Begin decommissioning oil and gas power plants and pipelines, and capping exploration and production infrastructure, and other related fossil fuel assets no later than 2030

2. DISCLOSE FOSSIL FUEL EXPOSURE, EMISSIONS, AND IMPACTS

a. Disclose All Fossil Fuel Assets And Financial Estimates And Assumptions Regarding Asset Impairment

- Disclose all oil, natural gas, and coal assets in the asset manager's equity and credit portfolios, and financial estimates and assumptions around future commodity prices, cash flows, asset impairment, and asset retirement obligations.

b. Disclose All Direct And Indirect Emissions³⁰ And Climate-Related Community Impacts

- Disclose all direct and indirect emissions (Scope 1, 2, and 3 as defined by the GHG Protocol and the Partnership for Carbon Accounting Financials [PCAF])³¹ in absolute and intensity terms as well as other climate impacts, environmental violations and litigation, and climate-related community impacts for its entire portfolio.

²¹ World Meteorological Organization "WMO confirms 2024 as warmest year on record at about 1.55°C above pre-industrial level." January 10, 2025. <https://wmo.int/news/media-centre/wmo-confirms-2024-warmest-year-record-about-155degc-above-pre-industrial-level>

²² Foster, G. et al. "Global Warming Has Accelerated Significantly." Geophysical Researchers Letters' March 6, 2026. <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2025GL118804>

²³ Tollefson, Jeff. "Global greenhouse-gas emissions are still rising: when will they peak?" Nature. November 12, 2025. <https://www.nature.com/articles/d41586-025-03618-z>

²⁴ IEA. "World Energy Outlook 2025." November 12, 2025. <https://www.iea.org/reports/world-energy-outlook-2025>

²⁵ Rainforest Action Network et al. "Banking on Climate Chaos Fossil Fuel Finance Report 2026." 2026. https://www.bankingonclimatechaos.org/wp-content/uploads/2026/06/BOCC_2026_vFINAL.pdf

²⁶ Muttit, Greg et al. Guest post: How quickly does the world need to 'phase down' all fossil fuels?" Carbon Brief. February 16, 2023. <https://www.carbonbrief.org/guest-post-how-quickly-does-the-world-need-to-phase-down-all-fossil-fuels>

²⁷ United Nations, "Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment", August 9, 2021, <https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment#:~:text=There%20must%20be%20no%20new,fuel%20subsidies%20into%20renewable%20energy.>

²⁸ The pathways C1-C3 are broadly compatible with the Paris Agreement maxing out at 2C degrees of warming. <https://climateanalytics.org/comment/new-pathways-to-15c-interpreting-the-ipccs-working-group-iii-scenarios-in-the-context-of-the-paris-agreement>

²⁹ According to the International Energy Agency's "Net Zero by 2050" report, the least efficient coal plants need to be phased out by 2030 and the remaining coal plants still in use by 2040 need to be retrofitted if we are to stay under the 1.5°C warming scenario. https://iea.blob.core.windows.net/assets/7ebafc81-74ed-412b-9c60-5cc32c8396e4/NetZeroBy2050-ARoadmapfortheGlobalEnergySector-SummaryforPolicyMakers_CORR.pdf

³⁰ UN Principles for Responsible Investment, ERM, and iCI Working Group. 2022. "Greenhouse Gas Accounting and Reporting For the Private Equity Sector." May 2022. https://public.unpri.org/greenhouse-gas-accounting-and-reporting-for-the-private-equity-sector/9937_article/

³¹ Greenhouse Gas Protocol and Partnership for Carbon Accounting Financials <https://ghgprotocol.org/global-ghg-accounting-and-reporting-standard-financial-industry>

- Report portfolio-wide gross emissions, avoided emission carbon credits, and carbon removal credits separately from one another, without netting. If carbon offsets are purchased, they should be reported separately from greenhouse gas emissions.

3. REPORT A PORTFOLIO-WIDE ENERGY TRANSITION PLAN

a. Disclose A Portfolio-Wide Climate Transition Plan

- Report the asset manager's progress with implementing its climate transition plan throughout the firm's entire portfolio annually, and any adjustments that have been made to original assumptions about the availability of technologies and market conditions. The climate transition plan should include a detailed description of GHG emissions reduction targets, metrics on progress toward those targets, capital expenditures due to climate impacts and for transition activities, and a commitment to increase clean energy investments, year over year.

b. Disclose Role Of Voluntary Offsets Immediately And Cease Their Utilization

- Offsets markets have significant environmental, accounting, and social integrity problems³² that jeopardize the fulfillment of corporate climate pledges and can negatively impact marginalized communities.³³ Failure by companies to report their investments in offsets across their investment portfolios and how they will address these integrity problems poses a material risk to investors and the financial system.³⁴ To address these concerns, private equity asset managers must report details on whether and to what extent the asset manager is transitioning to a net zero investment portfolio through internal decarbonization efforts, by directly investing in carbon removal capacity, or by buying carbon offsets, including:
 - Disclose plan to reduce the use of carbon offsets to zero
 - Disclose details about the procurement and holding of offsets in the firm's investment portfolio as well as the GHG emissions reductions achieved and anticipated from these offsets projects.
 - Disclose whether and to what extent it has purchased offsets over the reporting period and retired offsets as compensation for any gross emissions during the reporting period.
 - Disclose the registry number and details of the projects underlying any carbon offsets acquired, and whether emissions were purportedly reduced, avoided, or removed. For removal, indicate the expected time period of emissions storage.
 - While offsets are in use, state all assumptions used to calculate the GHG emissions changes.

c. Disclose Use Of Carbon Removal, Carbon Utilization And Storage, And Related Technologies

- Carbon dioxide removal (CDR) technologies and carbon capture utilization and storage (CCUS) will not be able to address extraction-driven climate and ecological crises at the scale necessary as long as fossil fuels continue to be extracted and burned. Both CDR/CCUS contributes to worsened air quality directly, as the carbon capture process generates toxic pollution through fuel combustion and chemical release, as well as by increasing the lifetime of assets that

³² Krukowska, Eva, "Carbon Offsets Have an Integrity Problem. COP26 May Help Fix It," *Bloomberg*, Nov. 16, 2021, <https://www.bloomberg.com/news/articles/2021-11-17/carbon-offsets-have-an-integrity-problem-cop26-may-help-fix-it>; New Climate Institute and Carbon Market Watch, "Corporate Climate Responsibility Monitor 2022," Feb. 2022, <https://newclimate.org/sites/default/files/2022/02/CorporateClimateResponsibilityMonitor2022.pdf>; White, Natasha and Rathi, Akshat, "Green Groups Want Offsets Disclosed as Part of the SEC's Climate Rule," *Bloomberg*, Feb. 14, 2022, <https://www.bloomberg.com/news/articles/2022-02-14/green-groups-want-offsets-disclosed-as-part-of-sec-s-climate-rule>.

³³ Berk, Norah, and Lungungu, Prince, "REDD-Minus: The Rhetoric and Reality of the Mai Ndombe REDD+ Programme," London: Rainforest Foundation UK, 2020, <https://www.rainforestfoundationuk.org/media/ashx/redd-minus.pdf>; Jennifer Devine, "Counterinsurgency Ecotourism in Guatemala's Maya Biosphere Reserve," *Environment and Planning D: Society and Space* 32, no. 6 (January): 984–1001, 2014, available at <https://doi.org/10.1068/d13043p>; Milne, Sarah, Sango Mahanty, Phuc To, Wolfram Dressler, Peter Kanowski, and Maylee Thavat, "Learning From 'Actually Existing' REDD+: A Synthesis of Ethnographic Findings," *Conservation and Society* 17, no. 1 (2019): 84–95, 2019, available at <https://www.environmentandsociety.org/mml/learning-actually-existing-redd-synthesis-ethnographic-findings>.

³⁴ The call for disclosure of offsets applies across investment portfolios, not just the private equity firm's own corporate operations. The integrity risks of reliance on offsets are described here: Cushing, B., Arkush, D., Martin, A., and Kostyack, J., "Comment to the U.S. Securities and Exchange Commission: Offsets Disclosures in Climate Risk Disclosure Rule," Sierra Club, Public Citizen, Americans for Financial Reform Education Fund, Kostyack Strategies, February 2022, <https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Offsets%20Disclosures%20in%20Climate%20Risk%20Disclosure%20Rule.pdf>

produce toxic air pollutants, disproportionately harming disadvantaged, and other environmental justice communities.³⁵ Moreover, as nearly all captured carbon to date has been used for enhanced oil recovery, CDR/CCUS may ultimately increase emissions overall when additional oil production is considered. As such, private equity managers and their portfolio companies should disclose any use of carbon dioxide removal, carbon capture utilization and storage, and related technologies. They should also disclose plans to reduce investment in CDR/CCUS and instead plan to meet GHG targets through bonafide emission reductions.

d. Disclose Comprehensive Analyses Under Various Climate Warming Scenarios and Decarbonization Timelines

e.

- Disclose a comprehensive climate risk management strategy under a 1.5 degrees Celsius global warming scenario consistent with science-based emissions targets, as well as scenarios above 1.5 degrees Celsius, including at least 2 degrees Celsius and 3 degrees Celsius, assuming both orderly and disorderly transition scenarios, as outlined by the Network for Greening the Financial System.³⁶

4. INTEGRATE CLIMATE AND ENVIRONMENTAL JUSTICE

a. Establish Robust Due Diligence, Verification, And Grievance Redress Mechanisms To Ensure That All Human Rights And Land Rights Are Respected

- Establish robust due diligence, verification, and grievance redress mechanisms to ensure that all human rights are respected, particularly the rights of Indigenous peoples, including their rights to their water and lands and the right to Free, Prior, and Informed Consent, as articulated in the UN Declaration on the Rights of Indigenous Peoples,³⁷ and ensure that ongoing community impacts are monitored.

b. Require All Portfolio Companies To Adopt No-Deforestation, No Peat, And No Exploitation (NDPE) Policies

- Forests not only source the livelihoods for 22 percent of humanity, but they also absorb 40 percent of greenhouse emissions.³⁸ Asset managers should prohibit financing or investment in any company or asset that involves the degradation or loss of natural forests or other natural ecosystems, with particular emphasis on peatlands, or any company that fails to comply with a No Deforestation, No Peatland, No Exploitation (NDPE) policy at a corporate group level.³⁹ Reducing deforestation and the degradation of natural ecosystems protects critical carbon sinks. Any expansion of industrial-scale forestry, agriculture, or commodity production that directly or indirectly results in forest degradation and deforestation, new infrastructure in Intact Forest Landscapes, or violations of the rights of Indigenous Peoples, is incompatible with the Paris Agreement.⁴⁰ Companies expanding the production and use of fossil fuels or the degradation of ecosystems, or that are violating human rights, cannot be regarded as

³⁵ Jacobsen, M., "The health and climate impacts of carbon capture and direct air capture," Energy & Environmental Science, 2019 (12). <https://web.stanford.edu/group/efmh/jacobson/Articles/Other/19-CCS-DAC.pdf>; Climate Justice Alliance, Grassroots Global Justice Alliance, Institute for Policy Studies Climate Policy Program, New York Lawyers for the Public Interest, Indigenous Environmental Network, and Michigan Environmental Justice Coalition letter to the White House's Council on Environmental Quality, 2022, https://docs.google.com/document/d/1m8j83i6sa-o_gZ_hORcb8xcOF0k5m9Ft5RfFeOfASGE/edit.

³⁶ Network for Greening the Financial System, "A call for action: Climate change as a source of financial risk," April 2019, https://www.ngfs.net/sites/default/files/medias/documents/ngfs_first_comprehensive_report_-_17042019_0.pdf; Network for Greening the Financial System, "Scenarios Portal", Accessed August 16, 2022, <https://www.ngfs.net/ngfs-scenarios-portal/>

³⁷ United Nations, "United Nations Declaration on the Rights of Indigenous Peoples, September 2007, https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

³⁸ United Nations Principles of Responsible Investment, "Deforestation as systemic risk: An opportunity for investors collective action," Accessed May 18, 2022, <https://www.unpri.org/sustainable-land-use/deforestation-as-a-systemic-risk-an-opportunity-for-investors-collective-action/7711.article>.

³⁹ Rainforest Action Network, "Principles For Paris-Aligned Financial Institutions: Climate Impact, Fossil Fuels, And Deforestation," September 16, 2020, https://www.ran.org/wp-content/uploads/2020/09/RAN_Principles_for_Paris-Aligned_Financial_Institutions.pdf

⁴⁰ The Paris Agreement notes "the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth." https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

transitioning toward climate alignment.⁴¹ As such, asset managers should eliminate deforestation, conversion, and associated human rights abuses from their portfolios by 2025.⁴²

c. Develop A Just Transition Program With Impacted Communities And Workers

- Engage with impacted communities to develop a just transition program both for the workforces facing dislocation from the energy transition, and communities impacted by current fossil fuel holdings to ensure remediation of health and environmental harms, including land use changes and deforestation, infringement of land rights and the rights of Indigenous peoples, natural resource extraction, disruption to local economies, air and water pollution, harm to public health and safety, and worker dislocation.⁴³

5. PROVIDE TRANSPARENCY ON POLITICAL SPENDING AND CLIMATE LOBBYING

a. Disclose Political Spending And Climate Lobbying At Asset Manager, Portfolio Company, And Trade Association Level

- Companies should be consistent in their policy engagement in all geographic regions and they should ensure any engagement conducted on their behalf or with their support is aligned with restricting global warming to the 1.5 degrees Celsius scenario. As such asset managers must annually disclose the political spending and climate lobbying of:
 - the asset manager and its executives;
 - its portfolio companies and their executives;
 - of the associations, alliances, coalitions, or think tanks of which it is a member or to which it provides support.⁴⁴

b. Provide Transparency On Alignment With Global Standards On Responsible Corporate Climate Lobbying

- Provide transparency on the asset manager's alignment with the Global Standard on Responsible Corporate Climate Lobbying including:
 - Make a public commitment to align all climate change lobbying for the asset manager, its subsidiaries, and associations, alliances, and coalitions of which it is a member with the goal of restricting global temperature rise to 1.5 degrees Celsius above pre-industrial levels
 - Establish an annual monitoring and review process to ensure that all direct and indirect climate change lobbying activities across all geographies are consistent with the goal of restricting global temperature rise to 1.5 degrees Celsius above pre-industrial levels
 - Establish a clear framework for addressing misalignments between the climate change lobbying positions adopted by the associations, alliances and coalitions of which it is a member and the goal of restricting global temperature rise to 1.5 degrees Celsius above pre-industrial levels

⁴¹ Rainforest Action Network, "Principles For Paris-Aligned Financial Institutions: Climate Impact, Fossil Fuels, And Deforestation," September 16, 2020, https://www.ran.org/wp-content/uploads/2020/09/RAN_Principles_for_Paris-Aligned_Financial_Institutions.pdf

⁴² Global Canopy, "Deforestation-Free Finance," Accessed May 18, 2022, <https://guidance.globalcanopy.org/>

⁴³ According to the International Labour Organization, a 'just transition' means 'greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind. A Just Transition involves maximizing the social and economic opportunities of climate action, while minimizing and carefully managing any challenges – including through effective social dialogue among all groups impacted, and respect for fundamental labour principles and rights.'" Source: International Labour Organization, "Frequently Asked Questions on Just Transition," https://www.ilo.org/global/topics/green-jobs/WCMS_824102/lang--en/index.htm, Accessed May 17, 2022.

⁴⁴ These standards are based on the UNPRI's Investor Expectations on Corporate Climate Lobbying found here: <https://www.iigcc.org/hubfs/Past%20resource%20uploads/Investor%20expectations%20on%20corporate%20lobbying%20-%20October%202018.pdf>

APPENDIX E: AFFORDABILITY GRAPHIC EXPLANATIONS

Overview

The affordability case study attempts to calculate broadly quantifiable correlative links between the estimated magnitude of the financed CO₂e emissions of the profiled private equity firms' fossil fuel assets (called "private equity emissions" in this appendix) and a set of specific living expenses using good-faith estimates and factors drawn from existing research. The baseline assumption is that private equity emissions have a material effect on climate conditions and contribute to climate change.

The following list of factors which fed into the overall cost of living were selected because they are reasonably understood to be affected by climate change:

- Work income
- Housing
- Utilities
- Healthcare
- Taxes
- Saving

In order to conduct this analysis, where possible, existing research about private equity's fossil fuel impacts on certain factors like health impacts was used. Where new calculations were needed, the overall emissions estimate across all of the in-scope private equity firms was used as an input. The full emissions figure — 1,501,046,170 metric tons of carbon dioxide equivalent (CO₂e) — was used for the purposes of calculation, but it is presented as 1.5 billion metric tons.

Where explicitly noted, some of the figures have been estimated for a 10-year period, assuming a constant rate of emissions and impact, to represent long-term cost of living increases.

Estimates of atmospheric factors

The case study identified two atmospheric qualities that share a causal relationship with climate change: carbon concentration, which influences climate change; and temperature, which is influenced by climate change. This relationship can be described by the following linkage:

Emissions → Carbon concentration → Climate change → Temperature → Material effects → Affordability

In 2026, private equity emissions were estimated at 1,501,046,170 metric tons of CO₂e. For ease, all calculations assume a 1:1 conversion factor between CO₂e and CO₂, as it is the most prevalent and impacts the atmosphere for a longer period of time.⁴⁵ Thus, while private equity emissions likely include some percentage of other gases, such as methane, the calculations assume that they are fully CO₂.

Carbon concentration

Carbon concentration, measured in parts per million (ppm), represents the number of carbon dioxide molecules present in one million molecules of the atmosphere. The value fluctuates during any given year but has tended toward increasing over the long term.⁴⁶ The greater the carbon concentration, the more this greenhouse gas can contribute to global warming and other climate effects.

⁴⁵ "What are greenhouse gases and how do they affect the climate?" 2022. U.S. Energy Information Administration. <https://www.eia.gov/tools/faqs/faq.php?id=81&t=11>

⁴⁶ Lindsey, Rebecca. 2025. "Climate change: atmospheric carbon dioxide." National Oceanic and Atmospheric Administration. <https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide>

Researchers have estimated that the mass of carbon dioxide in the atmosphere could be around 2.1297×10^{15} kilograms. The estimate stems from a measurement of 417 ppm in 2022 compared against the total mass of Earth's atmosphere.⁴⁷

Private equity emissions were quantified at the metric ton level. To convert:

$$2.1297 \times 10^{15} \text{ kilograms} = 2.1297 \times 10^{12} \text{ metric tons} = 2,129,700,000,000 \text{ metric tons}$$

If, by mass, 417 ppm equates to 2,129,700,000,000 metric tons, 1 ppm would be approximately 5,107,194,244.6 metric tons.

About half of anthropogenic carbon dioxide is released into the atmosphere, with the remainder absorbed in equal parts by the land and sea. If, in total, private equity emissions were 1,501,046,170 metric tons in 2026, the atmosphere would absorb 750,523,085 during the same period.⁴⁸

To determine the total ppm contribution:

$$\frac{750,523,085 \text{ metric tonnes}}{x \text{ ppm}} = \frac{5,107,194,244.6 \text{ metric tonnes}}{1 \text{ ppm}}$$

$$750,523,085 / 5,107,194,244.6 = 0.14695409045 \text{ ppm}$$

In a single year, private equity emissions contributed to an estimated 0.14695409045 ppm change in atmospheric carbon concentration, rounded to 0.15 ppm.

Temperature

Otevřená data o klimatu, a Czech climate nonprofit, notes that the rate of global warming by greenhouse gas concentration is logarithmic, but it can be approximated linearly for a certain range of values. For that range: "[e]very time the CO₂ concentrations rise by 10 ppm (parts per million), the mean global temperature increases by 0.1 °C."⁴⁹

To simplify, if a 10 ppm increase in CO₂ can be tied to a 0.1°C in mean global temperature, the temperature change attributable to private equity emissions can be calculated by:

$$\frac{0.15 \Delta \text{ppm}}{x \Delta^\circ \text{C}} = \frac{10 \Delta \text{ppm}}{1 \Delta^\circ \text{C}}$$

$$0.15 \times 1 = 10x$$

$$x = 0.15 / 10 = 0.015 \Delta^\circ \text{C}$$

Over ten years, a 0.015 Δ°C per year translates to 0.15 Δ°C, or a tenth of a degree.

Work Income

Previous research from the Private Equity Climate Risks consortium estimated that the health impacts from PE-backed oil and gas extraction, coal power plants, and liquid natural gas terminals lead to 27,000 lost work days a

⁴⁷ Moftakhari Anasori Movahed, Saman. 2023. "Re: How many tonnes of CO₂ are 1 ppm in the Atmosphere?" Università Ca' Foscari di Venezia. https://www.researchgate.net/post/How_many_tonnes_of_CO2_are_1_ppm_in_the_Atmosphere

⁴⁸ "Understanding the basics of carbon dioxide." 2024. National Oceanic and Atmospheric Administration. <https://research.noaa.gov/understanding-the-basics-of-carbon-dioxide/>

⁴⁹ "How are CO₂ concentrations related to warming?" 2024. Otevřená data o klimatu, z. ú. <https://factsonclimate.org/infographics/concentration-warming-relationship>

year.⁵⁰ The National Equity Atlas reports the hourly median wage, as of 2022, was \$27.⁵¹ Assuming a standard eight-hour workday, 27,000 lost work days at \$27 an hour results in a loss of \$5,832,000 in lost wages every year. If the rate of pollution and resulting health impacts remains constant, that is \$58,320,000 over a decade. Above temperatures of 20°C, productivity drops an estimated two to three percent per additional degree.⁵²

Housing

According to an article published by Ruthy Gourevitch, director of Housing and Communities at the Climate and Community Institute, over 40 percent of the country's 44 million rental housing units, or 17.6 million, are in areas facing immediate risk of climate disasters.⁵³ Prices across the board are also going up due to "climateflation."⁵⁴ The analysis examined costs to renters and homeowners. Tens of millions may be priced out of housing.⁵⁵

Rent Costs

An August 2025 paper from the U.S. Department of Energy and University of Michigan provided a preliminary analysis of how rising ambient temperatures related to residential rental rates in the United States. Researchers found that, disregarding seasonal and regional factors, every degree in temperature increase led to a rental rate increase of around \$2.22. If $1\Delta^{\circ}\text{C} = \Delta\2.22 rental rate, then private equity emissions' temperature burden of $\Delta 0.0015^{\circ}\text{C}$ per year would result in a $\Delta\$0.00333$ in rental rate, per renter. Assuming a monthly rental rate, this is an additional \$0.03996 per year, per renter. With 103 million renters in the United States,⁵⁶ all U.S. renters would collectively pay an additional \$4,115,880 in a single year. Over ten years, this comes to \$41,158,800.

Mortgage origination

A paper in the *Journal of Empirical Finance* found a potential link between loan originations and high local temperatures. One of the findings suggested that a 1°F increase in local temperature results in a 6.7 percent lower mortgage origination rate.

As private equity emissions' temperature burden has so far been expressed in Celsius, a conversion between change-Fahrenheit and change-Celsius is necessary:

$$\begin{aligned}\Delta 1F &= \frac{9}{5} \Delta xC \\ \Delta 1F &= \frac{9x}{5} \\ 5 &= 9x \\ x &= \frac{5}{9} \\ \Delta 0.55555556 C\end{aligned}$$

⁵⁰ Hurley, Alex. 2025. "Private Equity, Public Harm." Private Equity Climate Risks. https://peclimaterisks.org/wp-content/uploads/2025/06/PECR_June_2025_Report.pdf

⁵¹ "Wages: Median: In an equitable economy, all workers would earn a living wage, without systematic differences by race and gender." 2022. National Equity Atlas. <https://www.nationalequityatlas.org/indicators/wages-median>

⁵² "Climate change and workplace heat stress." 2025. World Health Organization. <https://www.who.int/publications/i/item/9789240099814>

⁵³ Gourevitch, Ruthy. 2025. "The Climate Crisis Hits Tenants Hardest. They're Fighting Back." Shelterforce. <https://shelterforce.org/2025/04/04/the-climate-crisis-hits-tenants-hardest-theyre-fighting-back/>

⁵⁴ Court, Emma. "Climate change is already showing up in the cost of living." 2026. *LA Times*. <https://www.latimes.com/environment/story/2026-04-28/climate-change-is-already-showing-up-in-cost-of-living>

⁵⁵ Gourevitch, Ruthy. 2025. "The Climate Crisis Hits Tenants Hardest. They're Fighting Back." Shelterforce. <https://shelterforce.org/2025/04/04/the-climate-crisis-hits-tenants-hardest-theyre-fighting-back/> ; Court, Emma. "Climate change is already showing up in the cost of living." 2026. *LA Times*. <https://www.latimes.com/environment/story/2026-04-28/climate-change-is-already-showing-up-in-cost-of-living>

⁵⁶ "Rent Statistics U.S." 2026. Self Financial, Inc. <https://www.self.inc/info/rent-statistics/>

If a $\Delta 0.55555556^{\circ}\text{C}$ change results in a 6.7 percent decrease in mortgage originations, then PE's projected impact can be calculated as follows:

$$\begin{aligned}\frac{0.0015 (PE)\Delta^{\circ}\text{C}}{x} &= \frac{0.55555556 \text{ base}\Delta^{\circ}\text{C}}{6.7 \text{ percent}} \\ \frac{0.0015 (PE)\Delta^{\circ}\text{C}}{x} &= \frac{0.55555556 \text{ base}\Delta^{\circ}\text{C}}{6.7 \text{ percent}} \\ 0.55555556x &= 0.01005 \\ x &= 0.0180899985 \text{ percent}\end{aligned}$$

Or, 0.018 percent lower mortgage origination rate versus the average.

With a \$2.2 trillion total single-family mortgage origination volume in 2026, according to the Mortgage Bankers Association,⁵⁷ a 0.018 percent dip would see a decrease of \$396,000,000 in a single year.

Utilities

Research from the American Council for an Energy-Efficient Economy found that a quarter of low-income households spend more than 15 percent of their income on energy bills.⁵⁸ Similarly, low-income households face a three-times higher “energy burden” than other households.⁵⁹ This calculation focuses on changes to electricity costs, but there are similar upward pressures from climate change on water and gas utilities.⁶⁰

Electric

The federal government's U.S. Climate Resilience Toolkit reports that net energy costs to consumers could increase by as much as 10 to 22 percent.⁶¹ As of August 2026, the average U.S. residential electricity rate was 18.44 cents per kilowatt-hour (kWh).⁶² The average U.S. household used 10,791 kWh of electricity in 2022.⁶³ At the average rate, this totals \$1,989.86. A 22 percent increase would result in a \$437.77 higher yearly bill. Over ten years, comes to approximately \$4,300 more.

⁵⁷ Taylor, Falen. 2026. “MBA Forecast: Total Single-Family Mortgage Originations to Increase 8 percent to \$2.2 Trillion in 2026.” Mortgage Bankers Association. <https://www.mba.org/news-and-research/newsroom/news/2025/10/19/mba-forecast-total-single-family-mortgage-originations-to-increase-8-percent-to-2.2-trillion-in-2026>

⁵⁸ Rodeffer, Mark. 2024. “Study: One in Four Low-Income Households Spend Over 15% of Income on Energy Bills.” American Council for an Energy-Efficient Economy. <https://www.aceee.org/press-release/2024/09/study-one-four-low-income-households-spend-over-15-income-energy-bills>

⁵⁹ “Low-Income Household Energy Burden Varies Among States — Efficiency Can Help In All of Them.” 2019. U.S. Department of Energy Office of Energy Efficiency & Renewable Energy. https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf

⁶⁰ Skerker, Jennifer, et. al. “Urban water affordability crisis exacerbated by climate change.” 2025. *Nature Sustainability*. <https://doi.org/10.1038/s41893-026-01890-z>; Williams-Derry, Clark. 2021. “IEEFA U.S.: Booming U.S. natural gas exports fuel high prices.” Institute for Energy Economics and Financial Analysis. <https://www.energy.gov/documents/7-ieefa-booming-us-natural-gas-exports-fuel-high-pricespdf>

⁶¹ “Energy Consumption.” 2026. U.S. Climate Resilience Toolkit. <https://toolkit.climate.gov/energy-consumption>

⁶² “Electricity Rates by State.” 2026. Electric Choice. <https://www.electricchoice.com/electricity-prices-by-state/>

⁶³ “How much electricity does an American home use?” 2022. U.S. Energy Information Administration. <https://www.eia.gov/tools/faqs/faq.php?id=97&t=3>

Medical

Previous research from the Private Equity Climate Risks consortium estimated that the health impacts from PE-backed oil and gas extraction, coal power plants, and liquid natural gas terminals lead to 1,000 premature deaths and 1,400 extra emergency room visits per year.⁶⁴ The healthcare nonprofit HealthPartners suggests that, without insurance, a single emergency room visit could cost between \$1,500 and \$3,000. Taking the maximal measure, \$3,000, an additional 1,400 emergency room visits could mean \$4.2 million per year, or \$42 million in ten years.

The PECR report also linked these private equity assets to higher incidence of asthma: 584,000 cases of symptoms, and 3,700 cases of asthma onset.⁶⁵ Medical professionals generally consider asthma to be an incurable, lifelong condition.⁶⁶ The Illinois Department of Central Management Services estimated the per-person cost of asthma to be \$3,266 per year, accounting for prescriptions, office visits, hospitalizations, outpatient visits, and emergency department care.⁶⁷ If each of the 3,700 new asthma patients lives a typical life with asthma, together they would pay \$12,084,200 to treat their condition.

The social cost of carbon (SCC) is a measure developed by Resources for the Future and is used by governments and policymakers across the world to develop energy-sector cost-benefit analyses. It represents an “estimate, in dollars, of the economic damages that would result from emitting an additional ton of carbon dioxide into the atmosphere.”⁶⁸ These damages include impacts to agriculture, human health, energy use, and damage to coastal infrastructure.” In 2022, RFF updated the SCC to \$185 per ton, using their open-source GIVE model, co-developed with UC Berkeley.⁶⁹

At 1,501,046,170 metric tons (1,654,620,171.411 U.S. tons), private equity emissions result in an estimated SCC of \$306,104,731,711 (at \$185/ton).

According to Terrapass, the average annual government cost associated with climate-related disaster recovery comes out to nearly \$142 per household.⁷⁰ Analysis from Realtor.com suggests that 1 in 4 homes face climate risk.⁷¹ The Federal Reserve Bank of St. Louis estimates 149,006,000 housing units in the country. A quarter of this is 37,251,000.5. At \$142 per household, the total economic burden may be as high as \$5,289,642,071 if all of those climate-prone homes require disaster recovery.

Purchasing Power and Emergency Fund

A research paper in Communications Earth & Environment titled “Global warming and heat extremes to enhance inflationary pressures” estimated that headline inflation will increase by 0.32 to 1.18 percentage points per year under

⁶⁴ Hurley, Alex. 2025. “Private Equity, Public Harm.” Private Equity Climate Risks. https://peclimaterisks.org/wp-content/uploads/2025/06/PECR_June_2025_Report.pdf

⁶⁵ Ibid.

⁶⁶ “Asthma.” 2025. National Health Services UK. <https://www.nhs.uk/conditions/asthma/>

⁶⁷ “The Economic Impact That Asthma Has on the Economy and Families.” 2026. Illinois Department of Central Management Services.” <https://cms.illinois.gov/benefits/stateemployee/bewell/financialwellness/economic-impact-of-asthma.html>

⁶⁸ “How Much is a Ton of CO2 Worth?” 2026. Resources for the Future. <https://www.rff.org/how-much-is-a-ton-of-co2-worth/>

⁶⁹ “RFF-Berkeley Greenhouse Gas Impact Value Estimator (GIVE) Model.” 2022. Resources for the Future. <https://www.rff.org/topics/data-and-decision-tools/give/>

⁷⁰ “How Climate Change Is Raising the Cost of Living.” 2026. Terrapass. <https://terrapass.com/blog/how-climate-change-is-raising-the-cost-of-living/>

⁷¹ Navera, Tristan. 2026. “Climate Risk Threatens \$11.2 Trillion in Housing Wealth, but Rising Costs Are Forcing Homeowners To Drop Coverage.” National Association of Realtors. <https://www.realtor.com/news/trends/climate-risk-threatens-11-2-trillion-in-housing-wealth-but-rising-costs-are-forcing-homeowners-to-drop-coverage/>

temperature increases projected for 2035.⁷² Taking a 1.4°C estimate, since PE is expected to contribute to a 0.015°C increase over ten years in our estimate, that accounts for an approximately 0.0177 percentage point increase over that time period.

According to the Federal Reserve's Survey of Consumer Finances, the median American has \$8,000 in their transaction accounts.⁷³ If 300 million people had this median in their accounts and never received interest, they would carry \$2.4 trillion.

Since a 1% interest rate effectively cuts purchasing power by 1%, an increase of 0.0177 percentage points would eat away at purchasing power by \$424,800,000 in ten years.

⁷² Kotz, Maximilian. 2024. "Global warming and heat extremes to enhance inflationary pressures." *Communications Earth & Environment*. https://www.nature.com/articles/s43247-023-01173-x?_sp=7606cd84-28de-4c91-b1d7-c9a589c952c1.1784231093529

⁷³ Bennett, Karen. 2026. "The average amount in U.S. savings accounts – how does your cash stack up?" Bankrate. <https://www.bankrate.com/banking/savings/savings-account-average-balance/>