



ABOUT THIS BRIEF

This report analyzes investment-level, annualized impact performance data contributed by investors to the GIIN's energy impact performance benchmark. The brief forms part of a family of GIINsight briefs on impact results which provide deep-dive findings using benchmark data to enhance actionable insights for investors. Data pertain to direct impact investments in energy, investments made directly into companies, or projects with the intent to create a positive, measurable social or environmental impact alongside a financial return. Findings presented in this brief may be useful as investors explore patterns in impact results.

Energy Impact Investors Not on Track to Limit Emissions to Meet Climate Goals

The United Nations COP28 convening in December 2023 highlighted global progress in combating and mitigating climate change. However, a report released before the conference revealed that global warming is estimated to rise to 3 C this century, double the 1.5 C target limit set by the [2015 Paris Agreement](#).ⁱ That year, Paris Agreement signatories agreed to develop [nationally determined contributions](#) (NDCs), national emissions targets set to hold governments accountable for limiting warming by 2030.ⁱⁱ However, as they stand, the NDCs fail to meet the 1.5 C target.ⁱⁱⁱ Where governments fall short, the private sector, and impact investors in particular, can play an important role in equitably mitigating emissions by channeling capital toward climate action.^{iv}

According to the GIIN's 2023 research on investment allocations, a majority of impact investors already allocate at least some capital toward climate action, with 71% of investors targeting climate change mitigation.^v Yet investors are often faced with challenges in evaluating impact performance, including setting data-driven emissions reduction targets and determining whether the pace of impact achieved across their investments is enough to limit warming to 1.5 C.^{vi} Comparing investment impact results to the pace of change needed to mitigate the climate crisis can offer critical context for investors and help them assess their progress relative to data-driven thresholds.

This brief compares the change in the greenhouse gas (GHG) emissions among investments in the GIIN's energy benchmark samples' Scope 1 emissions¹ relative to science-based thresholds for GHG reductions needed to limit to 1.5 C by 2030, globally and by region.² Global targets are sourced from the United Nations Environment Programme (UNEP) and the Intergovernmental Panel on Climate Change (IPCC), while regional targets are based on modeled emissions pathways calculated by the Climate Action Tracker. According to the Climate Action Tracker, these pathways were generated using the integrated assessment models from the 2018 IPCC Special Report on 1.5 C.³ Taken together these global and regional targets can begin to offer thresholds for impact investors to assess their performance and create targets to meet their climate goals. Contextual targets by region are a particularly useful starting point for investors to inform their own regional data-driven climate objectives.

Sample investments in energy are underachieving relative to the global target needed to meet the 1.5 C goal

The energy sector — which includes energy consumption, transportation, electricity, heat, buildings, manufacturing and construction — is responsible for 86% of global GHG emissions.^{vii} As the fastest growing sources of GHG emissions, electricity and heat production contribute most to the climate crisis.^{viii} Emissions from the energy sector reached a record high of 37 billion tons in 2022, with a further projected peak later this decade.^{ix}

1 [Scope 1 emissions](#) refers to direct GHG emissions occurring from sources controlled or owned by an organization.

2 Unlike company emissions, national carbon output is not measured in "scopes". According to the United Nations Environment Programme, countries estimate national emissions through a bottom-up approach which combines data on types of activity and the emissions typically produced by those activities. This means country-level emissions data may not exactly match emissions data estimated by organizations. Nonetheless, using these country-level emissions data to create reduction targets provides investors with an opportunity to assess emissions associated with their investments. These emissions can be analyzed in the context of their region of operations and global climate goals.

3 Climate Action Tracker emissions pathway models are included in this report to demonstrate pathways to 1.5 C in accordance with the [IPCC's predictive modeling](#), where the NDCs fall short. For context, other instructive pathways not used in this brief include the [SBTi Financial Institutions Net-Zero Standard](#), the [U.S. Department of Treasury Principles](#) and the Bain PDMR Roadmap.

According to UNEP, to limit warming to 1.5 C by 2030, global GHG emissions need to decrease by 8.7% annually from 2024 to 2030.* The energy investments included in this sample do not meet this goal.⁴ On average, a given investment in the sample saw emissions increase by 39% annually, underperforming relative to the change needed. However, when looking at the median, which is less susceptible to extreme values, the change in Scope 1 emissions drops to an increase of just 3.7% per year, with investors at the 75th percentile seeing a 5.8% annual decrease in emissions. This indicates that a quarter of investments in the sample were responsible for the majority of emissions.

Emissions targets vary by region

The pace of change needed to limit global warming to 1.5 C by 2030 differs by region depending on market type. The regions requiring the largest annual emissions reductions, at 6%, are East Asia, Eastern Europe and Central Asia, the U.S. and Canada, and Western, Northern and Southern Europe. The region needing the next largest annual reduction is Oceania at 5%; 4% is needed in the Middle East and North Africa (MENA); 3% in Southeast Asia, sub-Saharan Africa and Latin American and the Caribbean; and 2% in South Asia.⁵

Comparing actual impact results from energy investments in the benchmark sample to the regional change needed offers an opportunity for investors to assess their impact performance relative to what is required to mitigate global warming. For regions where data is available, investors represented in the energy benchmark were not on track to meet regional targets. For example, at the median, investments in MENA increased their emissions by 1.2% per year. In sub-Saharan Africa emissions increases were higher, with a median rise of 4.9% per year. Naturally, emissions vary depending on the stage of business of an investment, the nature of the investment and the time horizon. Given that investments in both regions are seeing an increase in emissions rather than a decrease, there is opportunity to explore how investors can strengthen performance relative to regional targets.

GHG emissions targets by geographic region

GEOGRAPHIC REGION	AVERAGE TARGET DECREASE IN GHG EMISSIONS REQUIRED TO LIMIT WARMING
East Asia	-6%
Eastern Europe and Central Asia	-6%
Latin America and Caribbean	-3%
Middle East and North Africa	-4%
Oceania	-5%
South Asia	-2%
Southeast Asia	-3%
Sub-Saharan Africa	-3%
U.S. and Canada	-6%
Western, Northern and Southern Europe	-6%

Note: Average regional climate targets represented in this table are calculated from country-level modeled emissions pathways developed by the Climate Action Tracker based on IPCC data accessed in March 2024.

Source: Global Impact Investing Network (GIIN), 2024. Climate Action Tracker, 2024.

The majority of carbon emissions come from the Global North, but emissions pathways show reductions are needed in emerging markets too

Developed markets, including the U.S. and Europe, are primarily responsible for historic carbon emissions. Between 1850 and 2015 the U.S. and the European Union (EU) were responsible for 26% and 23% cumulative territorial CO2 emissions, respectively.^{xi,6} As of 2020 the Global North as a whole was responsible for 92% of total global excess carbon emissions released into the atmosphere.^{xii} Additionally, despite the decline in emissions from 2022 to 2023, the U.S. was still the second-largest contributor of emissions as of 2023.^{xiii}

4 The sample includes 155 annualized energy investments submitted to the GIIN's energy impact performance benchmark.
5 Countries were grouped based on [World Bank classification](#).
6 During this time frame, the U.S. and EU released 410 and 358 gigatons of CO2, respectively. During the same time period China released 190 gigatons and India 46 gigatons.

Because of this geographic disparity in historic emissions, the target decrease in emissions needed differs between emerging and developed markets. To assess how emissions between these regions differed, country-level emissions data and Climate Action Tracker modeled pathways were grouped by World Bank regional classifications and compared.⁷ The analysis showed that, on average, emerging markets require an annual decrease in emissions of 5%, while developed markets should see a slightly larger 6% decrease. The difference between emerging and developed markets widens when comparing the least developed countries with all other countries (non least developed and developed), with a change of 2% and 5% needed, respectively.

Contrary to the global need, the emissions from investments in the energy benchmark sample actually increased, with emissions across investments in emerging markets recording a median increase in emissions of 3.2% per year. A lack of data on investments in developed markets in the benchmark sample prevented the GIIN from calculating the pace of change needed there, and external research shows mixed results.⁸ According to the International Energy Agency, the EU saw CO2 emissions fall by 2.5% from 2021 to 2022, while in the U.S. CO2 emissions rose by 0.8%.^{xiv} However, U.S. Energy Information Administration data from 2023 show that U.S. CO2 emissions declined by 3% compared to 2022.^{xv}

GHG emissions targets by market type

MARKET TYPE	AVERAGE TARGET DECREASE IN GHG EMISSIONS REQUIRED TO LIMIT WARMING
Emerging market	-5%
Developed market	-6%
Least developed country	-2%
Non-least developed country	-5%

Note: Average market targets represented in this table are calculated from country-level modeled emissions pathways developed by the Climate Action Tracker based on data accessed in March 2024.
Source: Global Impact Investing Network (GIIN), 2024. Climate Action Tracker, 2024.

Implications for investors

In 2023, in the first ever global progress assessment on the Paris Climate Agreement, the UN called for a transition away from fossil fuels in a “just, orderly and equitable manner.”^{xvi} Impact investors have the opportunity to use the data from this brief to do just that, in the following ways:

- 1. Investors can use data-driven regional targets to ensure they are limiting global warming.** Mobilizing capital from institutional investors can provide a key lever in driving the change needed to address the funding gap for climate action. However, for impact investors to productively fill this gap, it is vital to rely on data-driven targets to assess the efficacy of their investments. Investors can use the global and regional targets to assess progress relative to quantitative, data-driven goals. And there is precedent for benchmarking corporate performance against targets set by governments.⁹ While global targets may be helpful for setting portfolio-level impact targets, regional targets can be useful for specific investment targets in the energy sector. Ultimately, a data-driven approach to target-setting can help investors assess their impact performance relative to the required change and make informed allocation and management decisions.
- 2. While regional targets for emissions reductions are important for investors, historical context and stakeholder engagement matter too.** The emissions targets offered in this brief provide a starting point for investors looking to set minimum data-driven emissions targets. At the same time, investors should consider the relevant historical context of the regions in which they are investing. By engaging with end stakeholders, investors can gain a richer understanding of community needs beyond broader emissions targets. According to the 2023 GIINsight series, nearly half of investors, 49%, do not engage with end stakeholders, although their investees do.^{xvii} Naturally, stakeholder engagement is more limited for some investor types, such as asset owners and public market-focused investors. Nonetheless, when investors in the sample engaged with stakeholders in at least one form, their investees’ emissions increased at an average annual rate of 1.2% compared to an average of 4.8% per year for investments without any stakeholder engagement. Increasing engagement with stakeholders can allow investors to go beyond country-level climate targets to assess how emissions decreases fit into the local community context.

⁷ See Methodology below for more information.
⁸ The benchmark sample includes a greater body of data from emerging market investments and fewer from developed markets. As the benchmark continues to grow the sample will become increasingly representative of diverse geographies.
⁹ In 2023, dairy company Danone committed to aligning with the Global Methane Pledge developed by the EU and the U.S.

3. **Impact investments in the energy sector have particular relevance to carbon emissions, given that 80% of global emissions come from the energy sector.** Transforming energy systems is imperative to limiting global warming.^{xviii} Investors can play a critical role in transitioning the energy sector away from fossil fuels by allocating capital toward renewable and clean energy investment opportunities. Investments in emerging markets, where clean energy can bring significant additional social and economic benefits, are especially important, as emerging markets receive only a fifth of all energy transition investments.^{xix} Ultimately, however, impact investors in all sectors can assess their emissions to ensure alignment with global requirements.

METHODOLOGY

To determine the required regional pace of change, the GIIN calculated the annual change needed for a sample of 38 countries to reach their respective emissions targets, then aggregated these by World Bank region. Target and current emissions data were sourced from the Climate Action Tracker modeled pathways, which use UN data to calculate country-level tons of emissions targets that would limit warming to 1.5 C. To avoid COVID-19 related data anomalies in emissions data from 2020 and 2021, 2019 was used as the base year. The same approach was taken to determine the rate of change needed for emerging and developed countries.

ENERGY IMPACT BENCHMARK KPIS AND IRIS+ METRICS USED IN THIS BRIEF:

SCOPE 1 AND 2 GREENHOUSE GAS EMISSIONS

Reducing greenhouse gas emissions is a crucial first step in mitigating the climate crisis, avoiding irreversible climate damage and achieving the Paris Climate Agreement goals. Assessing and reducing greenhouse gas emissions can help to reduce air pollution, stabilize weather patterns, strengthen ecosystems, improve health outcomes and support the transition to more sustainable food systems.

Greenhouse Gas Emissions Scopes (OI573)

Greenhouse Gas Emissions: Total (OI1479)

Greenhouse Gas Emissions: Direct (OI4112)

Greenhouse Gas Emissions: Indirect (OI9604)

Greenhouse Gas Emissions of Product (PD9427)

Visit the GIIN's benchmarks to find more insights on the impact performance of investments in energy, sample characteristics and methodological choices in the energy impact performance benchmark. There you can also join the impact performance benchmark and anonymously contribute your impact data.

- i (2023). New Analysis of National Climate Plans: Insufficient Progress Made, COP28 Must Set Stage for Immediate Action. Available at: <https://unfccc.int/news/new-analysis-of-national-climate-plans-insufficient-progress-made-cop28-must-set-stage-for-immediate>. (Accessed: May 22, 2024).
- ii The Paris Agreement. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement>. (Accessed: May 22, 2024).
- iii (2023). New Analysis of National Climate Plans: Insufficient Progress Made, COP28 Must Set Stage for Immediate Action. Available at: <https://unfccc.int/news/new-analysis-of-national-climate-plans-insufficient-progress-made-cop28-must-set-stage-for-immediate>. (Accessed: May 22, 2024).
- iv Hand, D., Sunderji, S., Pardo, N. (2023). GIINSight 2023: Impact Measurement & Management Practice. The Global Impact Investing Network (GIIN). New York.
- v Hand, D., Sunderji, S., Pardo, N. (2023) GIINSight 2023: Emerging Trends in Impact Investing. The Global Impact Investing Network (GIIN). New York.
- vi Hand, D., Sunderji, S., Pardo, N. (2023). GIINSight 2023: Impact Measurement & Management Practice. The Global Impact Investing Network (GIIN). New York.
- vii Ritchie, H, Rosado, P., Rose, M. (2024). Emissions by sector: where do greenhouse gases come from? Our World in Data. Available at: <https://ourworldindata.org/emissions-by-sector#:~:text=Annual%20greenhouse%20gas%20emissions%20by%20sector&text=Electricity%20and%20heat%20production%20are%20the%20largest%20contributors%20to%20global%20emissions>. (Accessed: May 22, 2024).
- viii Ibid.
- ix (2023). Net Zero Roadmap: A Global Pathway to Keep the 1.5 C Goal in Reach. International Energy Agency. <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>.
- x (2023). Emissions Gap Report 2023: Broken Record. Available at: United Nations Environmental Programme. <https://www.unep.org/resources/emissions-gap-report-2023>. (Accessed: May 22, 2024).
- xi Hickel, J. (2020). Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary. The Lancet Planetary Health, 4 (9), <https://www.sciencedirect.com/science/article/pii/S2542519620301960>.
- xii Ibid.
- xiii (2023). Global carbon emissions from fossil fuels reached record high in 2023. University of Exeter and Stanford Doerr School of Sustainability. Available at: <https://sustainability.stanford.edu/news/global-carbon-emissions-fossil-fuels-reached-record-high-2023>. (Accessed: May 22, 2024).
- xiv (2023). CO2 Emissions in 2022. International Energy Agency. Available at: <https://www.iea.org/reports/co2-emissions-in-2022>. (Accessed: May 22, 2024).
- xv Nakolan, K. (2024). U.S. energy-related CO2 emissions decreased by 3% in 2023. U.S. Energy Information Administration. Available at: <https://www.eia.gov/todayinenergy/detail.php?id=61928>. (Accessed: May 29, 2024).
- xvi (2023). COP28 Agreement Signals “Beginning of the End” of the Fossil Fuel Era. United Nations. Available at: <https://unfccc.int/news/cop28-agreement-signals-beginning-of-the-end-of-the-fossil-fuel-era>. (Accessed: May 22, 2024).
- xvii Hand, D., Sunderji, S., Pardo, N. (2023). GIINSight 2023: Impact Measurement & Management Practice. The Global Impact Investing Network (GIIN). New York.
- xviii Ibid.
- xix (2021). Financing Clean Energy Transitions in Emerging and Developing Countries. International Energy Agency. Available at: <https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies>. (Accessed: May 22, 2024).

GIIN SIGHT



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