

Information on Vanguard's Greenhouse Gas Emissions and Goals Methodology

Vanguard's corporate climate strategy seeks to reduce our firm's own climate impact, pursue sustainable business operations, and engage our crew. The methodology behind our carbon neutrality goals and the progress made toward those goals highlighted on our [Sustainability page](#) are described below.

Methodology

Vanguard's greenhouse gas (GHG) emissions reporting follows the [Greenhouse Gas Protocol](#) corporate standard. The company has a goal of reaching carbon neutrality throughout its global operations by 2025. We aim to achieve this goal by reducing Scope 1, 2, and select Scope 3 GHG emissions by at least 20% as compared to 2019 and by offsetting remaining emissions in those categories. Scopes 1, 2, and 3 are as defined by the Greenhouse Gas Protocol standard:

- Scope 1 refers to all direct GHG emissions.
- Scope 2 refers to indirect GHG emissions from consumption of purchased electricity, heat, or steam.
- Scope 3 refers to other indirect emissions not covered in Scope 2 that occur in a company's value chain, including both upstream and downstream emissions.

The Scope 3 categories included in Vanguard's carbon neutrality goal are purchased goods and services (only includes emissions associated with shuttle, security, and other service vehicles), fuel and energy-related activities, waste generated in operations, business travel, employee commuting, and upstream leased assets. Scope 3 data in Vanguard's carbon neutrality goal does not include Vanguard fund investments.

We measure interim progress made toward our goal by assessing annual GHG emissions as well as carbon offset and renewable energy certificate purchases. Vanguard reached 71 percent carbon neutrality in 2022.

Carbon offset projects

Vanguard's total GHG emissions for 2020, 2021, and 2022, as disclosed on the firm's [Sustainability page](#), reflect reductions from purchased renewable energy certificates and carbon offsets.

Vanguard's carbon offset projects, 2021–2022

The following carbon offset projects are reflected in Vanguard's total carbon emissions reductions for 2021 and 2022:

Inventory year	Name of project	Project ID number	Seller	Verification program	Protocol	Type	Country	State
2021	Greenville County Landfill Gas Utilization Project	CAR495	3Degrees Group, Inc.	Climate Action Reserve	CAR Landfill Project Protocol, Version 3.0	Avoided Emissions - Landfill Gas	United States	South Carolina
2021	GS1247 VPA 164 EcoZoom Improved Stove Programme, Uganda	GS7153	3Degrees Group, Inc.	Gold Standard VER	Gold Standard Methodology Technologies and Practices to Displace Decentralized Thermal Energy Consumption Version 1	Avoided Emissions - Clean Cookstoves	Uganda	N/A
2021	Guanare Forest Plantations on Degraded Grasslands under Extensive Grazing	VCS959	3Degrees Group, Inc.	Verified Carbon Standard	AR-ACM0001 Version 5.2.0	Removals - Afforestation	Uruguay	N/A
2022	Davidson County Landfill Gas Destruction Project	VCS2414	3Degrees Group, Inc.	Verified Carbon Standard	CAR U.S. Landfill Project Protocol, Version 5.0	Avoided Emissions - Landfill Gas	United States	North Carolina
2022	Clinton Landfill Gas Collection and Combustion Project	VCS318	3Degrees Group, Inc.	Verified Carbon Standard	ACM0001, "Flaring or use of landfill gas", Version 19	Avoided Emissions - Landfill Gas	United States	Illinois
2022	Paradigm, Kenya Clean Cookstove Project	VCS1918	3Degrees Group, Inc.	Verified Carbon Standard	AMS-II.G., "Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass", Version 10	Avoided Emissions - Energy Efficiency, Clean Cookstoves	Kenya	N/A

Renewable energy

In 2022, Vanguard continued to use 100% renewable electricity globally in owned properties—a goal we first achieved in 2021—and we also achieved that goal in leased properties where Vanguard has operational control. Where possible, our buildings are powered by on-site renewable electricity and direct renewable electricity from the utility supplier. Where direct renewable electricity from the utility supplier is unavailable, our approach includes purchasing renewable energy certificates (RECs).

We offer programs for our crew to encourage their use of low-carbon transportation, including about 70 free electric vehicle charging ports adjacent to our buildings, shuttles between campuses and to and from public transit, and pretax deductions for public transit costs. Additionally, we have begun to add electric vehicles to our maintenance fleet.

Assurance

Vanguard's Scope 1, 2, and 3 GHG emissions, as well as how we account for the use of renewable energy and REC purchases within our GHG emissions inventory for 2020, 2021, and 2022, have been assured by ERM CVS, a third-party sustainability analysis provider. This assurance is based on the International Standard on Assurance Engagements (ISAE 3000).

In addition, we purchased carbon offsets exclusively from providers that require independent third-party verification of projects and corresponding emission reductions or removals achieved. All RECs purchased are certified as Green-e certified renewable energy by a third-party provider.

Vanguard does not have separate and additional third-party assurance for its carbon offset purchases, for its 2025 carbon neutrality goal, or for its statement as to interim progress of 71% carbon neutrality by year-end 2022.

Information on Vanguard ESG funds actively managed by third-party advisors with net zero goals

As an asset manager, Vanguard is committed to providing investors with the information and products they need to make sound investment choices to help enable them to meet their financial goals and reflect their personal preferences.

Certain Vanguard funds engage independent third-party investment advisors (external advisors) to provide investment advisory services to the fund. These external advisors retain the investment discretion for determining the funds' investment strategies and for managing the investment and reinvestment of assets within these funds, pursuant to an arms-length agreement. Certain of these external advisors have identified and published goals to manage their portfolios in line with a goal of net zero emissions by 2050, which may include investing a portion of their advised funds' assets in companies pursuing net zero targets.

The following table outlines the Vanguard ESG (environmental, social, and governance) funds whose external managers pursue these net zero goals as part of the ESG funds' investment strategies. The table includes a link to each fund's prospectus and other relevant information that discloses the advisor's net zero goals, including the science-based targets associated with them. The external managers maintain responsibility for identifying and assessing progress toward these goals. Vanguard is not a signatory to any net zero initiatives and does not pursue net zero goals for any Vanguard-advised funds.

Vanguard ESG funds

Fund name	External advisor	Net zero goals description
Vanguard Baillie Gifford Global Positive Impact Stock Fund	Baillie Gifford Overseas Limited	Fund Literature
Vanguard Global Environmental Opportunities Stock Fund	Ninety One North America, Inc.	Fund Literature
Vanguard Global ESG Select Stock Fund	Wellington Management Company LLP	Fund Literature

Information on Vanguard ESG index funds

We offer four U.S.-domiciled ESG index funds: Vanguard ESG International Stock ETF, Vanguard ESG U.S. Corporate Bond ETF, Vanguard ESG U.S. Stock ETF, and Vanguard FTSE Social Index Fund. Each fund employs an indexing investment approach designed to track the performance of its respective benchmark index. Each fund's benchmark index excludes companies that the independent index provider determines do not meet certain ESG criteria. These funds do not pursue net zero goals.

Vanguard reports information on certain Vanguard ESG index funds' asset-weighted average of holdings with Scope 1 and 2 emissions data from each of Sustainalytics and MSCI ESG Research LLC (MSCI). Vanguard also reports information on certain ESG index funds' total carbon footprint and weighted average carbon intensity from MSCI. Sustainalytics collects reported Scope 1 and 2 emissions data from public documents available on company websites and through regulatory authorities, and by communicating directly with companies. For companies that lack emissions data, Sustainalytics uses proprietary modeling techniques to estimate emissions.¹ Sustainalytics conducts internal reviews of its own processes but does not receive or provide third-party assurances regarding the accuracy of the underlying submissions for companies.² MSCI collects publicly available emissions and intensity data from company-reported sources, government agencies, nongovernmental organizations, and media sources. To Vanguard's knowledge, MSCI does not receive third-party assurances regarding the accuracy of the underlying information. Vanguard relies on the accuracy of the data provided by Sustainalytics and MSCI. Vanguard does not independently review the accuracy of Sustainalytics' or MSCI's data and does not retain independent third-party verification services to review that data.

1 Sustainalytics, "Carbon Emissions Data," available at <https://www.sustainalytics.com/investor-solutions/esg-research/climate-solutions/carbon-emissions-data>.
 2 Sustainalytics, Overview of Sustainalytics' ESG Risk Ratings, at 3.

For more information about Vanguard funds and ETFs, visit [vanguard.com](https://www.vanguard.com) to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information about a fund are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF Shares are not redeemable with the issuing Fund other than in very large aggregations worth millions of dollars. Instead, investors must buy and sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

All investing is subject to risk, including the possible loss of the money you invest.

ESG funds are subject to ESG investment risk, which is the chance that the stocks or bonds screened by the index provider or advisor, as applicable, for ESG criteria generally will underperform the market as a whole or, in the aggregate, will trail returns of other funds screened for ESG criteria. The index provider or advisor's assessment of a company, based on the company's level of involvement in a particular industry or their own ESG criteria, may differ from that of other funds or an investor's assessment of such company. As a result, the companies deemed eligible by the index provider or advisor may not reflect the beliefs and values of any particular investor and may not exhibit positive or favorable ESG characteristics. The evaluation of companies for ESG screening or integration is dependent on the timely and accurate reporting of ESG data by the companies. Successful application of the screens will depend on the index provider or advisor's proper identification and analysis of ESG data. The advisor may not be successful in assessing and identifying companies that have or will have a positive impact or support a given position. In some circumstances, companies could ultimately have a negative or no impact or support of a given position.

London Stock Exchange Group companies includes FTSE International Limited ("FTSE"), Frank Russell Company ("Russell"), MTS Next Limited ("MTS"), and FTSE TMX Global Debt Capital Markets Inc. ("FTSE TMX"). All rights reserved. "FTSE®", "Russell®", "MTS®", "FTSE TMX®" and "FTSE Russell" and other service marks and trademarks related to the FTSE or Russell indexes are trademarks of the London Stock Exchange Group companies and are used by FTSE, MTS, FTSE TMX and Russell under license. All information is provided for information purposes only. No responsibility or liability can be accepted by the London Stock Exchange Group companies nor its licensors for any errors or for any loss from use of this publication. Neither the London Stock Exchange Group companies nor any of its licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the results to be obtained from the use of the FTSE Indexes or the fitness or suitability of the Indexes for any particular purpose to which they might be put.

To learn more about Vanguard, visit [vanguard.com](https://www.vanguard.com).

The Vanguard logo is displayed in a bold, red, serif font. The word "Vanguard" is written in all lowercase letters, with a registered trademark symbol (®) at the end.

© 2024 The Vanguard Group, Inc.
All rights reserved.
Vanguard Marketing Corporation,
Distributor.

VCCM 012024