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# Portfolio Carbon Emissions Metrics

## Methodology

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**Morningstar Sustainalytics**  
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### Executive Summary

- ▶ Global agreements to mitigate greenhouse gas emissions contribute to an enhanced focus on decarbonization and commitment to climate action, further supported by stricter regulation on a global scale and increasing investor and consumer awareness.
- ▶ Effective measurement and monitoring of greenhouse gas emissions lays the foundation for decarbonization efforts.
- ▶ Portfolio carbon footprint and intensity metrics facilitate the disclosure of portfolio carbon emissions data and can help investors create and implement broader climate strategies such as net-zero emissions targets.
- ▶ Both types of metrics quantify the greenhouse gas emissions associated with a portfolio and are derived using Morningstar Sustainalytics' comprehensive coverage of scope 1, 2, and 3 emissions company data, covered through the collection of reported company data and proprietary estimated data.
- ▶ Carbon intensity represents the portfolio's carbon efficiency, whereas carbon footprint measures the amount of greenhouse gas emissions attributable to a portfolio.

### Introduction

Portfolio carbon footprinting and intensity metrics aim to help investors understand the carbon emissions associated with a portfolio. A portfolio's carbon intensity and carbon footprint are each based on the greenhouse gas emissions, otherwise known as carbon emissions, of companies held by the portfolio, with emissions expressed as tonnes of carbon dioxide equivalent, CO<sub>2</sub>e. Carbon intensity represents the portfolio's carbon efficiency by measuring the weighted average of each company's greenhouse gas emissions divided by the company's revenue, whereas carbon footprint measures the amount of greenhouse gas emissions attributable to a portfolio by determining the portion of the company the portfolio owns and deriving the emissions per million U.S. dollars invested. Both metrics aim to help investors understand how the corporate entities of a portfolio contribute to greenhouse gas emissions and are available for scope 1 and 2 emissions as well as scope 1, 2, and 3 emissions—both are different options for defining **total emissions**.

**Portfolio Carbon Footprint** is the amount (expressed in tonnes of CO<sub>2</sub>e) of total emissions attributable to a portfolio, per million dollars (USD) invested, and is derived for both **total emissions scope 1 and 2** and **total emissions scope 1, 2, and 3**. The total emissions a portfolio is responsible for, also known as its absolute greenhouse gas emissions, is calculated by working out for each unique holding the percentage of that company that the portfolio owns, then summing the share of total emissions each

holding is responsible for. The total emissions (in tonnes of CO<sub>2</sub>e) the portfolio is responsible for is then divided by the total dollar amount (in USD millions) invested in those companies.

**Portfolio Carbon Intensity** is the asset-weighted average for the portfolio of the underlying holdings' carbon intensity and is derived for both **carbon intensity scope 1 and 2** and **carbon intensity scope 1, 2, and 3**. The average only includes covered holdings for which the applicable company carbon intensity (in USD terms) is available. Carbon intensity for a company represents the volume of carbon emissions per million dollars of revenue, computed as follows: Total Emissions (tonnes of CO<sub>2</sub>e)/Revenue (millions USD). For a portfolio, carbon intensity represents the carbon efficiency of its investments, where a lower value indicates a lower carbon intensity and greater carbon efficiency.

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## Inputs

### Scope 1, 2, and 3 Emissions

Morningstar Sustainalytics provides a comprehensive coverage of greenhouse gas emissions data through the collection of reported company data and proprietary estimated data, which forms the basis of all portfolio carbon footprint and intensity metrics. Coverage of emissions data for companies contains scope 1, 2 and 3 emissions, as defined by the greenhouse gas Protocol Corporate Standard:

- ▶ Scope 1: direct emissions from controlled and owned sources
- ▶ Scope 2: indirect emissions from purchased electricity
- ▶ Scope 3: all other indirect emissions from both upstream and downstream activities

**Scope 1 emissions** include direct greenhouse gas emissions from sources that are owned or controlled by companies. Scope 1 can include emissions from fossil fuels burned on site, emissions from entity-owned or entity-leased vehicles, and other direct sources.

**Scope 2 emissions** include greenhouse gas emissions from the generation of purchased electricity consumed by companies. Scope 2 emissions physically occur at the facility where electricity is generated.

**Scope 3 emissions** capture all indirect value chain emissions beyond those covered in scope 2 and include both upstream emissions, such as purchased goods and services, as well as downstream emissions, such as use of sold products.

### Carbon Intensity

Morningstar Sustainalytics provides carbon intensity data for companies, calculated as the volume of emissions in tonnes of CO<sub>2</sub>e per financial unit of revenue (in this case, million USD). Carbon intensity is derived for companies for both scope 1 and 2 emissions, as well as for scope 1,2, and 3 emissions.

### Enterprise Value Including Cash (EVIC)

Morningstar provides the entire value of the company as **enterprise value including cash (EVIC)**. This is calculated by summing the market capitalization, the total preferred stock/units/securities, the noncontrolling/minority interests in equity, and the total debt.

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### Portfolio 'Look Through'

Morningstar will first attempt to "look through" any funds that are held by the portfolio to find underlying, indirectly held holdings. The "look through" function goes up to 10 portfolios "deep"—that is, when a portfolio holds a fund and in turn that fund holds other funds, the "look through" process will assess 10 "levels" of portfolios. The exception to this rule is for funds that are synthetically replicated; for the purpose of the carbon emissions calculations, they will be treated as being equivalent to a portfolio holding derivatives. The derivative holding will not be "looked through" and for the purposes of the calculations are treated as "other holdings"—that is, not corporate nor sovereign holdings.

### Portfolio Weights

The calculation steps start with a net long portfolio, also referred to as the *adjusted portfolio*. We calculate portfolio weights based on the following steps:

- 1) Any securities that have both long and short positions will be "netted out"—that is, the short position weight will be subtracted from the long position weight.
- 2) Any remaining short positions will be removed.
- 3) Any currency offsets will be removed.
- 4) The portfolio weight will then be recalculated on the netted-out long positions only:

The rescaled weight of a holding in the adjusted portfolio is derived as the holding's original portfolio weight, divided by sum of the original portfolio weights of the netted-out long, noncash offset holdings:  
[1]

$$W_i^R = \frac{\text{Portfolio Weight}_i}{\sum_{i=1}^n \text{Portfolio Weight}_i}$$

Where

$W_i^R$	=	The net long rescaled weight of the holding, which for each holding is derived as the original portfolio weight divided by the weight of the net long portfolio.
$\text{Portfolio Weight}_i$	=	Original portfolio weight.
$i=1, n$	=	All long, noncash offset holdings.

### Coverage Calculations

For all portfolio carbon footprint and intensity metrics, coverage statistics will be calculated to enable users to see the proportion of the adjusted portfolio that is eligible and covered. The initial step of the process is to identify the portion of the adjusted portfolio's holdings that can potentially contribute the required data to derive a given portfolio metric. These are known as **eligible holdings**. In the context of

the portfolio carbon footprint and intensity metrics, **eligible holding type** means corporate entities, such as equities and corporate bonds. Next, we identify which holdings have coverage of the required company-level data. **Covered holdings** are the subset of eligible holdings that have relevant input data available. A field indicating the **number of holdings covered** (that is, that have the relevant data for the given statistic) will also be calculated for each portfolio metric.

To start, the proportions of the adjusted portfolio that are eligible, not eligible, covered, not covered, and eligible but not covered will be calculated.

**Percentage of Portfolio Eligible:**

[2]

$$PortfolioEligible_R = \sum_{i=1}^E W_i^R$$

Where

$PortfolioEligible_R$	=	The proportion of the adjusted (net long) portfolio that is composed of eligible holdings.
$W_i^R$	=	The net long rescaled weight of the holding.
$i = 1, E$	=	All long, eligible holdings. These are securities in the adjusted (net long) portfolio that are of the relevant holding type.

**Percentage of Portfolio Not Eligible:**

[3]

$$PortfolioNotEligible_R = \sum_{i=1}^{NE} W_i^R$$

Where

$PortfolioNotEligible_R$	=	The proportion of the adjusted (net long) portfolio that is composed of <b>noneligible holdings</b> .
$W_i^R$	=	The net long rescaled weight of the holding.
$i = 1, NE$	=	All long, noneligible holdings. These are securities in the adjusted (net long) portfolio that are not of the relevant holding type.

**Percentage of Portfolio Covered:**

[4]

$$PortfolioCovered_R = \sum_{i=1}^{EC} W_i^R$$

Where

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$PortfolioCovered_R$	=	The proportion of the adjusted (net long) portfolio that is composed of covered holdings—that is, securities for which the underlying data is available for the calculation.
$W_i^R$	=	The net long rescaled weight of the holding.
$i = 1, EC$	=	All eligible, covered holdings. These are securities in the adjusted (net long) portfolio that are of the relevant holding type (eligible, E) and for which the relevant underlying data is known (covered, C).

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**Percentage of Portfolio Not Covered:**

[5]

$$PortfolioNotCovered_R = \sum_{i=1}^{NC} W_i^R$$

Where

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$PortfolioNotCovered_R$	=	The proportion of the adjusted (net long) portfolio that is composed of <b>noncovered holdings</b> —that is, securities for which the underlying data is not available for the calculation.
$W_i^R$	=	The net long rescaled weight of the holding.
$i = 1, NC$	=	All noncovered holdings. These are securities in the adjusted (net long) portfolio for which relevant underlying data is not available.

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**Percentage of Portfolio Eligible Not Covered:**

[6]

$$PortfolioEligibleNotCovered_R = \sum_{i=1}^{ENC} W_i^R$$

Where

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$PortfolioEligibleNotCovered_R$	=	The proportion of the adjusted (net long) portfolio that is composed of eligible holdings and for which the underlying data is not available for the calculation.
$W_i^R$	=	The net long rescaled weight of the holding.
$i = 1, ENC$	=	All eligible, noncovered holdings. These are securities in the adjusted (net long) portfolio that are of the relevant holding type (eligible, E) and for which relevant underlying data is not available (noncovered, NC).

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Next, the proportion of the eligible part of the adjusted portfolio where the relevant data is known (covered) and not known (not covered) is calculated.

This is calculated by taking the proportion of the adjusted portfolio that is covered (or not covered) and dividing it by the proportion of the portfolio that is eligible.

**Percentage of Eligible Portfolio Covered:**

[7]

$$EligiblePortfolioCovered_R = \frac{PortfolioCovered_R}{PortfolioEligible_R}$$

Where

$EligiblePortfolioCovered_R$	=	The proportion of only the eligible part of the adjusted portfolio where the underlying data is available for the calculation.
$PortfolioCovered_R$	=	The proportion of the adjusted portfolio that is composed of covered holdings.
$PortfolioEligible_R$	=	The proportion of the adjusted portfolio that is composed of eligible holdings.

**Percentage of Eligible Portfolio Not Covered:**

[8]

$$EligiblePortfolioNotCovered_R = \frac{PortfolioEligibleNotCovered_R}{PortfolioEligible_R}$$

Where

$EligiblePortfolioNotCovered_R$	=	The proportion of only the eligible part of the adjusted portfolio where the underlying data is not available for the calculation.
$PortfolioEligibleNotCovered_R$	=	The proportion of the adjusted portfolio that is composed of eligible holdings and for which the underlying data is not available.
$PortfolioEligible_R$	=	The proportion of the adjusted portfolio that is composed of eligible holdings.

The Number of Holdings Covered is also calculated:

[9]

<b>Number of Holdings Covered</b>	=	A simple count of the holdings in the adjusted portfolio where the underlying data is available.
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As the share of total greenhouse gas emissions attributable to a portfolio is based on the amount (in millions of USD) invested in a company, additional coverage statistics will be calculated to enable users to see the total value of the portfolio's investments (in millions of USD) that are eligible and covered. For the purpose of these calculations, the holding size, or holding value, is the market value for any equity-based securities and the nominal or face value for any bond holdings.

**Eligible Holdings in USD millions:**

[10]

$$PortfolioEligible_{USDm} = \sum_{i=1}^E holding\ size_i\ (USD)$$

Where

$PortfolioEligible_{USDm}$	=	The amount in millions of USD held in eligible holdings.
$holding\ size_i\ (USD)$	=	The amount in millions of USD held in the company.
$i = 1, E$	=	All long, eligible holdings.

**Covered Holdings in USD millions:**

[11]

$$PortfolioCovered_{USDm} = \sum_{i=1}^{EC} holding\ size_i\ (USD)$$

Where

$PortfolioCovered_{USDm}$	=	The amount in millions of USD held in covered holdings.
$holding\ size_i\ (USD)$	=	The amount in millions of USD held in the company.
$i = 1, EC$	=	All eligible, covered holdings.

**Eligible Not Covered Holdings in USD millions:**

[12]

$$PortfolioEligibleNotCovered_{USDm} = \sum_{i=1}^{ENC} holding\ size_i\ (USD)$$

Where

$PortfolioEligibleNotCovered_{USDm}$	=	The amount in millions of USD held in eligible holdings where the relevant underlying data is not known.
$holding\ size_i\ (USD)$	=	The amount in millions of USD held in the company.
$i = 1, ENC$	=	All eligible, noncovered holdings.

## Portfolio Carbon Footprint

Portfolio Carbon Footprint is the amount (in tonnes) of total greenhouse gas emissions attributable to a portfolio, per million dollars (USD) invested. The total emissions a portfolio is responsible for is calculated by working out for each unique holding the percentage of that company that the portfolio owns, then summing the share of total emissions each holding is responsible for. The absolute emissions (in tonnes) the portfolio is responsible for is then divided by the total dollar amount (in USD millions) invested in those companies.

[13]

$$\text{Portfolio Carbon Footprint} = \frac{\sum_{i=1}^{EC} \frac{\text{holding size}_i (\text{USD})}{\text{issuer's EVIC}_i (\text{USD})} * \text{issuer's total emissions}_i}{\sum_{i=1}^{EC} \text{holding size}_i (\text{USD})}$$

Where

<i>Portfolio Carbon Footprint</i>	=	The amount in tonnes per million USD invested of the relevant emission(s) for which the portfolio is known to be responsible.
<i>holding size<sub>i</sub>(USD)</i>	=	The amount in millions of U.S. dollars the portfolio has invested in the relevant underlying covered company. The sum of all holding sizes will be the covered portion of the portfolio.
<i>issuer's EVIC<sub>i</sub>(USD)</i>	=	The entire value of the company (enterprise value including cash) in millions of U.S. dollars. This is calculated by summing the market capitalization, the total preferred stock/units/securities, the noncontrolling/minority interests in equity, and the total debt.
<i>issuer's total emissions<sub>i</sub></i>	=	The amount, in tonnes, of the relevant emission(s) for which the relevant company is responsible.
<i>i = 1, EC</i>	=	All eligible, covered holdings. These are securities in the adjusted (net long) portfolio that are of the relevant holding type (eligible, E) and for which the relevant underlying data is known (covered, C).

## Portfolio Carbon Intensity

Portfolio Carbon Intensity is the asset-weighted average for the portfolio of the underlying holdings' carbon intensity and represents the carbon efficiency of its investments, expressed as tCO<sub>2</sub>e/\$M (tonnes of CO<sub>2</sub>e /Revenue in millions of USD). A lower value indicates lower intensity and greater carbon efficiency. Efficiency here refers to the greenhouse gas emissions of a company relative to its revenue, in



other words, how much greenhouse gas emissions a company is expending in order to generate \$1 million revenue.

[14]

$$\text{Portfolio Carbon Intensity} = \sum_{i=1}^{EC} W_i^{RC} * \text{Carbon Intensity}_i$$

Where

<i>Portfolio Carbon Intensity</i>	=	The asset-weighted average of a company's tonnes of CO2e per millions of USD revenue of the relevant emissions for all covered companies held in the portfolio.
$W_i^{RC}$	=	The rescaled weight of the covered holding, which for each covered holding is derived as the original portfolio weight divided by the weight of the covered portfolio. The covered portfolio is the subset of eligible holdings that have relevant input data available.
<i>Carbon Intensity<sub>i</sub></i>	=	Carbon intensity of covered holding.
$i = 1, EC$	=	All long, covered holdings. These are securities in the adjusted (net long) portfolio that are of the relevant holding type (eligible, E) and where the relevant underlying data is known (covered, C).

### Category Averages

Category averages are computed for all portfolio carbon footprint and intensity metrics to enable comparison of funds against their peer groups. The peer groups used are the standard Morningstar Categories.

Funds need to have at least 67% of their eligible portfolio covered to be included in the category average calculation. A category average is computed for a given Morningstar Category only when at least five funds meet the coverage requirement within this category.

[15]

$$\text{CategoryAverage}_R = \frac{\sum_{i=1}^F \text{PortfolioCarbonEmissionsMetric}_f}{\text{Number of Funds}}$$

Where

<i>PortfolioCarbonEmissionsMetric<sub>f</sub></i>	=	The relevant portfolio carbon emissions metric for fund f.
<b>Number of Funds</b>	=	The number of funds in the category that meet the relevant criteria to be included in the category average calculation.

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$i = 1, F$	=	All funds in the category that meet the relevant criteria.
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### Frequency of Calculations

Portfolio carbon emissions metrics will be issued monthly, one month and six business days after the reported as-of date for the company from Sustainalytics. The Portfolio Carbon Footprint metrics, Portfolio Carbon Intensity metrics, and Category Averages are issued as part of the same monthly cadence, calculated one month and six business days after their reported as-of date using the most recent portfolio. If an updated portfolio with the same as-of date as the company data has not been received by the calculation date, the most recent portfolio available will be used for score and ranking, provided the portfolio is less than 276 days old.



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### Methodology History

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## Appendix

### Glossary

<b>Term</b>	<b>Description</b>
<b>Carbon Date</b>	The effective date of the portfolio carbon emissions metrics.
<b>Carbon Intensity Scope 1 and 2</b>	Sustainalytics' carbon intensity data for companies, defined as the volume of scope 1 and 2 emissions in tonnes of CO <sub>2</sub> e per financial unit (in this case, million USD).
<b>Carbon Intensity Scope 1, 2, and 3</b>	Sustainalytics' carbon intensity data for companies, defined as the volume of scope 1, 2, and 3 emissions in tonnes of CO <sub>2</sub> e per financial unit (in this case, million USD).
<b>Covered Holdings</b>	Refers to the subset of eligible holdings that have relevant input data available.
<b>Covered Holdings in USD millions</b>	Refers to the value in millions of US dollars of the long, eligible holdings of the portfolio with relevant underlying data for the Carbon Footprint statistics.
<b>Eligible Holding Type</b>	An indication of which of the Corporate, Sovereign, or Other classifications is eligible for calculations. In the case of portfolio carbon emissions metrics, the Eligible Holding Type is Corporate for all calculations.
<b>Eligible Holdings</b>	Refers to the holdings that can potentially contribute the required data to derive a given portfolio metric. In the case of portfolio carbon emissions metrics, eligible holdings refer to long positions in securities issued by corporate entities, such as equities and corporate bonds.
<b>Eligible Holdings in USD millions</b>	Refers to the value in millions of US dollars of the long, eligible holdings of the portfolio for the Carbon Footprint statistics.
<b>Eligible Not Covered Holdings in USD millions</b>	Refers to the value in millions of US dollars of the long, eligible holdings of the portfolio for which the relevant underlying data is not available for the Carbon Footprint statistics.
<b>Enterprise Value Including Cash (EVIC)</b>	Refers to the entire value of a company, calculated by summing the market capitalization, the total preferred stock/units/securities, the noncontrolling/minority interests in equity, and the total debt.
<b>Noncovered Holdings</b>	Refers to the holdings that do not have relevant input data to contribute to a given portfolio metric. Noncovered holdings include both

	noneligible holdings and the subset of eligible holdings that do not have the relevant input data available.
<b>Noneligible Holdings</b>	Refers to the holdings that cannot potentially contribute the required data to derive a given portfolio metric. In the case of portfolio carbon emissions metrics, noneligible holdings refer to any noncorporate securities, such as cash, commodities, and sovereign and subsovereign bonds.
<b>Number of Holdings Covered</b>	The number of the long, eligible holdings with the relevant underlying data available.
<b>Percentage of Eligible Portfolio Covered</b>	The proportion of the eligible portfolio for which the relevant underlying data is available.
<b>Percentage of Eligible Portfolio Not Covered</b>	The proportion of the eligible portfolio for which the relevant underlying data is not available.
<b>Percentage of Portfolio Covered</b>	The proportion of the long-only portfolio that is eligible for the calculation and for which the relevant underlying data is available.
<b>Percentage of Portfolio Eligible</b>	The proportion of the long-only portfolio that is eligible for the calculation.
<b>Percentage of Portfolio Eligible Not Covered</b>	The proportion of the long-only portfolio that is eligible for the calculation but for which the relevant underlying data is not available.
<b>Percentage of Portfolio Not Covered</b>	The proportion of the long-only portfolio for which the relevant underlying data is not available. The Percentage of Portfolio Not Covered is equivalent to the sum of the Percentage of Portfolio Not Eligible and Percentage of Portfolio Eligible Not Covered.
<b>Percentage of Portfolio Not Eligible</b>	The proportion of the long-only portfolio that is not eligible for the calculation.
<b>Portfolio Carbon Footprint</b>	<p>The amount (in tonnes) of total emissions attributable to a portfolio, per million dollars (USD) invested. It is derived for both scope 1 and 2 emissions and scope 1, 2, and 3 emissions. The total emissions a portfolio is responsible for, also known as its absolute greenhouse gas emissions, is calculated by working out for each unique holding the percentage of that company that the portfolio owns, then summing the share of total emissions each holding is responsible for. The absolute emissions (in tonnes) the portfolio is responsible for is then divided by the total dollar amount (in USD millions) invested in those companies.</p> <p>The carbon footprint of a portfolio represents a portfolio's absolute emissions, normalized per million dollars invested, expressed in tonnes of CO<sub>2</sub>e/million USD invested. This calculation only includes the long portion of the holdings for which the data is available.</p>

<b>Portfolio Carbon Intensity</b>	The asset-weighted average for the portfolio of the underlying holdings' carbon intensity. It is derived for both scope 1 and 2 emissions and scope 1, 2, and 3 emissions. The average only includes holdings for which the applicable company's carbon intensity (in USD terms) is available. Carbon intensity for a company represents the volume of carbon emissions per million dollars of revenue, computed as follows: Total Emissions (tonnes of CO <sub>2</sub> e)/Revenue (millions USD). For a portfolio, carbon intensity represents the carbon efficiency of its investments, where a lower value indicates a lower carbon intensity and greater carbon efficiency.
<b>Scope 1 Emissions</b>	Refers to direct greenhouse gas emissions from sources that are owned or controlled by companies. Scope 1 can include emissions from fossil fuels burned on site, emissions from entity-owned or entity-leased vehicles, and other direct sources.
<b>Scope 2 Emissions</b>	Refers to greenhouse gas emissions from the generation of purchased electricity consumed by companies. Scope 2 emissions physically occur at the facility where electricity is generated.
<b>Scope 3 Emissions</b>	Refers to all indirect value chain emissions beyond those covered in scope 2 and include both upstream emissions, such as purchased goods and services, as well as downstream emissions, such as use of sold products.
<b>Total Emissions</b>	The overall emissions of a company expressed as tonnes of CO <sub>2</sub> e. Total emissions will either be defined as scope 1 and 2 emissions, or as scope 1, 2, and 3 emissions.
<b>Total Emissions Scope 1 and 2</b>	Sustainalytics' emissions data for companies, which includes direct emissions from controlled and owned sources (scope 1), and indirect emissions from purchased electricity (scope 2).
<b>Total Emissions Scope 1, 2, and 3</b>	Sustainalytics' emissions data for companies, which includes direct emissions from controlled and owned sources (scope 1), indirect emissions from purchased electricity (scope 2), and all other indirect emissions from both upstream and downstream activities in a company's value chain (scope 3).

## Frequently Asked Questions

### For what vehicles will portfolio carbon emissions metrics be calculated?

The portfolio carbon emissions metrics can be useful to investors globally and will be calculated for all funds regardless of where they are domiciled or sold and will be calculated for all universe types.

**What is the Carbon Date, and how does it differ from a fund's portfolio date?**

The **Carbon Date** represents the effective date of the portfolio carbon emissions metrics and is intended to provide a standard effective date for comparison across portfolios. It is the date in which the most recent portfolio and company data are used to derive the portfolio carbon emissions metrics. The Portfolio Carbon Footprint, Portfolio Carbon Intensity, and Category Averages are issued together on a monthly basis, calculated as-of the same Carbon Date. To accommodate different portfolio reporting frequencies, the portfolio carbon emissions metrics as-of a given Carbon Date will be calculated on a one-month, six-business-day lag. If an updated portfolio with the same as-of date as Carbon Date has not been received by the calculation date, the most recent portfolio available will be used, provided the portfolio is less than 276 days old.

For example, portfolio carbon emissions metrics as-of Carbon Date Jan. 31, 2023, will be issued on the sixth business day of March. If a portfolio date as of Jan. 31, 2023, has not been received for a given fund by the sixth business day of March, the most recent portfolio will be used, provided the portfolio is less than 276 days old.

**How does the effective date of the company data used relate to the Carbon Date?**

The Carbon Date represents the month-end effective date of the company data that was used to derive portfolio-level metrics. This means the most recently available company data as of the Carbon Date is what is used for the calculations. For portfolio carbon emissions metrics, this will be on a monthly basis with a one-month and six-business-day delay.

For example, all portfolio carbon emissions metrics as-of Carbon Date Jan. 31, 2023, will be calculated using Sustainalytics company data reported as-of January 2023 and would be derived one month and six business days after Jan. 31, 2023.

**Is there a minimum coverage requirement to generate portfolio carbon emissions metrics?**

There is no minimum coverage required to generate portfolio carbon footprint and intensity metrics. However, a suite of accompanying coverage and eligibility statistic will be issued for each metric.

**Why does my fund not have any portfolio carbon footprint or intensity metrics?**

If a fund does not have any portfolio emissions metrics generated, this could be due to one or more of the following:

- ▶ The fund does not have portfolio data available, or the most recent portfolio data is more than 276 days old.
- ▶ The fund does not contain any holdings eligible to generate portfolio carbon footprint or intensity metrics.
- ▶ The fund does not contain any covered holdings. That is, holdings with the relevant underlying data available.

**Why does my fund have Portfolio Carbon Intensity values but no Portfolio Carbon Footprint values?**

While portfolio carbon intensity and carbon footprint are each based on the carbon emissions of companies held by a portfolio, the required inputs for each calculation differ. As an ownership statistic, portfolio carbon footprint requires the availability of holding size, expressed as market value for any equity-based securities and the nominal or face value for any bond holdings, as well as company EVIC data, in addition to total emissions. If a fund has a Portfolio Carbon Intensity value but no Portfolio Carbon Footprint, this is most likely due to lack of company EVIC data and/or lack of holding size expressed in appropriate terms, rather than a lack of company emissions data.

**How is the percentage of a company the portfolio owns calculated?**

The calculation of the portfolio carbon footprint requires the percentage of the company the portfolio owns to be calculated. This is calculated by taking the holding size of the investment in the portfolio (for equity-based investment, this will be the market value, and for bonds, the nominal or book value) and dividing by the relevant company's enterprise value including cash as-of the portfolio date (the market capitalization of all ordinary and preferred shares plus the book value of total debt and minority interests).