

MSCI ESG and SFDR Index Metrics Calculation Methodology

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1 Introduction

This document outlines the methodology used to calculate and maintain two categories or index level ESG metrics:

- **EU Sustainable Finance Disclosure Regulation (SFDR)**
 Index level ESG metrics, using select metrics as set out in the Final Report on the Draft Regulatory Technical Standards with regard to the content, methodologies and presentation of disclosures pursuant to Article 2a(3), Article 4(6) and (7), Article 8(3), Article 9(5), Article 10(2) and Article 11(4) of Regulation (EU) 2019/2088, dated 2 February 2021.
- **Benchmark Regulation**
 Index level ESG information as per the Commission Delegated Regulation (EU) 2020/1816 of 17 July 2020 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

MSCI Limited is not a “financial market participant” as defined in the Regulation (EU) 2019/2088 or Regulation (EU) 2020/852. Index names are not required to comply with these and do not indicate that any product aligned with, or referencing, such an index is compliant with these regulations. Financial market participants and other users of MSCI indexes remain solely responsible for the naming, designation and/or classification of any financial products related to these regulations or guidance.

2 MSCI ESG Research

The calculation of ESG metrics uses company ratings and research provided by MSCI ESG Research. The following MSCI ESG Research products are used for the calculation: MSCI ESG Ratings, MSCI ESG Controversies, MSCI Business Involvement Screening Research, MSCI Climate Change Metrics and MSCI ESG Sustainable Impact Metrics.

For details on MSCI ESG Research’s full suite of ESG products, please refer to: <https://www.msci.com/esg-investing>.

2.1 MSCI ESG Ratings

MSCI ESG Ratings provides research, analysis and ratings of how well companies manage environmental, social and governance risks and opportunities.

MSCI ESG Ratings provides an overall company ESG rating - a seven point scale from ‘AAA’ to ‘CCC’. In addition, the product provides scores and percentiles indicating how well a company manages each key issue relative to industry peers.

For more details on MSCI ESG Ratings, please refer to: <https://www.msci.com/esg-ratings>.

2.2 MSCI ESG Controversies

MSCI ESG Controversies (formerly known as MSCI Impact Monitor) provides assessments of controversies concerning the negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with “0” being the most severe controversy.

For more details on MSCI ESG Controversies, please refer to : <https://www.msci.com/documents/10199/acbe7c8a-a4e4-49de-9cf8-5e957245b86b>.

2.3 MSCI ESG Business Involvement Screening Research

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf.

2.4 MSCI Climate Change Metrics

MSCI Climate Change Metrics is designed to support investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, and factoring climate change research into their risk management processes. It provides Carbon Emissions, Fossil Fuel exposure, environmental impact (i.e., clean technology) data and screens, as well as climate-related risk exposure and management assessment on companies such as Low Carbon Transition scores and categories.

For more details on MSCI Climate Change Metrics, please refer to <https://www.msci.com/climate-change-solutions>.

2.5 MSCI ESG Sustainable Impact Metrics

MSCI ESG Research's Sustainable Impact Metrics is designed to identify companies that currently offer products or services that address at least one of the major social and environmental challenges as defined by the UN Sustainable Development Goals. Designed as a positive screen, it is designed to highlight companies that are deriving sales from products or services that may have a positive impact on society and the environment.

For more details on the MSCI ESG Sustainable Impact Metrics, please refer to: <https://www.msci.com/esg-sustainable-impact-metrics>.

3 Definition of Metrics

The list and definition of each index level ESG metric published by MSCI is provided below.

3.1 ESG Metrics

Metric Name	Metric Definition
ESG Score	Weighted average ESG Score. The ESG Score indicates how well the index constituents manage their most material ESG risks relative to sector peers. Scores range from 10 (best) to 0 (worst).
UNGC Violations %	Exposure to companies in violation of the UN Global Compact (UNGC) principles, in accordance with the MSCI ESG Research methodology.
Environmental Pillar Score	Weighted average Environmental Pillar Score. The Environmental Pillar Score measures index constituents' management of and exposure to key environmental risks and opportunities. Scores range from 10 (best) to 0 (worst).
Enterprise Carbon Intensity	Weighted average Scope 1, Scope 2 and Scope 3 carbon emissions intensity normalized by enterprise value including cash. (Unit: tons of CO ₂ / \$ million enterprise value including cash)
Fossil Fuel Reserves %	Exposure to companies with evidence of owning proven or probable coal and proven oil and natural gas reserves used for energy generation.
Green Revenues %	Weighted average of index constituents' percentage of revenue derived from alternative energy, energy efficiency, green building, pollution prevention, sustainable water, or sustainable agriculture.
Physical Risk Climate VaR%	An aggregated downside or upside potential based on issuers' "worst-case" (95th percentile) value at risk, expressed as a percentage of the securities' market value, assuming trends in extreme cold, extreme heat, extreme precipitation, heavy snowfall, extreme wind, coastal flooding, fluvial flooding, and tropical cyclones continue along a Business-As-Usual pathway.
Social Pillar Score	Weighted average Social Pillar Score. The Social Pillar Score measures index constituents' management of and exposure to key social risks and opportunities. Scores range from 10 (best) to 0 (worst).
Social Violation (Count)	Absolute number of index constituents involved in social violations. Social violations are defined as Very Severe Controversies related to customers, human rights or labor rights, in accordance with the MSCI ESG Controversies methodology.
Social Violation (% Constituents)	Percentage of index constituents involved in social violations. Social violations are defined as Very Severe Controversies related to customers, human rights or labor rights, in accordance with the MSCI ESG Controversies methodology.
Controversial Weapons %	Exposure to companies with ties to controversial weapons. MSCI ESG Research's Controversial Weapons definition covers cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, non-detectable fragments and incendiary weapons.

Tobacco involvement Highly Restrictive %	Exposure to companies classified as tobacco producers, and companies that derive 5% or more aggregate revenue from the manufacture, distribution, retailing, licensing, and supply of tobacco products.
Tobacco involvement Moderately Restrictive %	Exposure to companies that derive 5% or more revenue from tobacco production, and companies that derive 15% or more aggregate revenue from the manufacture, distribution, retailing, licensing, and supply of tobacco products.
Governance Pillar Score	Weighted average Governance Pillar Score. The Governance Pillar Score measures index constituents' management of and exposure to key governance risks. Scores range from 10 (best) to 0 (worst).
Board Independence (Weighted Average)%	Weighted average percentage of board members that meet MSCI ESG Research criteria for board independence.
Board Diversity %	Weighted average percentage of women on the boards of index constituents.
Green Capex%	Weighted average of energy-related index constituents' percentage of capital expenditures (CapEx) derived from renewable energy. The scope of energy-related constituents are defined as companies belonging to the Utilities GICS® sector and those belonging to the Integrated Oil & Gas, Oil & Gas Exploration and Production, Oil & Gas Refining and Marketing, and Oil & Gas Storage & Transportation GICS® sub-industries.
High Climate Impact Sector Exposure %	Exposure to companies that belong to high climate impact sectors based on GICS® sub-industries that are mapped from the EU's NACE classification. This includes sectors listed in Sections A to H and Section L of Annex I to Regulation (EC) No 1893/2006 of the European Parliament and of the Council.
Fossil Fuel-Based Sector Exposure (NACE) %	Exposure to companies that are involved in carbon-intensive activities based on GICS® sub-industries that are mapped from the EU's NACE classification, following a two-step approach: 1. An initial list of sub-industries based on carbon-intensive activities that fall under Divisions 05 to 09, 19 and 20 of Annex I to Regulation (EC) No 1893/2006; 2. The list is then filtered to exclude sub-industries wherein 80% of companies in the MSCI ACWI IMI universe belong to the Solutions or Neutral categories using MSCI ESG Research's Low Carbon Transition framework.
Lack of Due Diligence Policy (ILO)%	Exposure to companies without due diligence policies on labor issues addressed by the fundamental International Labor Organisation (ILO) Conventions 1 to 8.
Gender Pay Gap%	Weighted average difference between the average gross hourly earnings of male and female employees as a percentage of male gross earnings, based on company reported data. Note that reporting on this metric is inconsistent: some companies report the absolute or uncontrolled pay gap while other control for compensable factors such as role or location.

Female: Male Board Diversity Ratio %	Weighted average ratio of female to male board members (%).
Total Recordable Injury Rate%	Weighted average total recordable injury rate (TRIR) per million hours worked. The TRIR includes fatalities, lost time injuries, restricted work injuries, and medical treatment injuries.
Bribery & Corruption Controversies (Sum)	Total number of controversy cases in the last three years related to index constituents' involvement in bribery and corruption issues.
Year on Year Decarbonization Trajectory	Forward-looking year-on-year decarbonization trajectory. This is not a calculated metric.
Decarbonization %	Degree to which the IPCC decarbonization trajectory (1.5°C with no or limited overshoot) has been achieved on average per year since creation.
Overlap between the benchmark and its investable universe (using the active share at asset level)	Overlap between those benchmarks and their investable universe, as defined in Article 1, point (e), of Commission Delegated Regulation (EU) 2020/1818, using the active share at asset level.
Weighted Average Carbon Intensity (t CO2e/\$M SIs)	Weighted average Scope 1, Scope 2 and Scope 3 carbon emissions intensity normalized by sales. (Unit: tons of CO2e / million \$ of sales).

3.2 SFDR Mandatory Metrics

Metric Name	Metric Definition
Carbon Footprint	Not available yet.
GHG Intensity of Investee Companies	Not available yet.
Exposure to companies active in fossil fuel sector %	Exposure to companies involved in oil and gas and thermal coal related revenue generating activities. The metric does not include revenue generating activities from metallurgical coal, and storage and transportation of coal.
Share of non-renewable energy consumption and production %	Not available yet.
Energy consumption intensity per high impact climate sector	Not available yet.
Activities negatively affecting	Not available yet.

biodiversity - sensitive areas	
Emissions to water	Not available yet.
Hazardous Waste Ratio	Not available yet.
Violations of UN Global Compact principles and Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises	Exposure to companies that are facing Very Severe Controversies related to the environment, customers, human rights, labor rights or governance, in accordance with the MSCI ESG Controversies methodology.
Lack of processes and compliance mechanisms to monitor compliance with UN Global Compact principles and OECD Guidelines for Multinational Enterprises %	Not available yet.
Unadjusted Gender Pay Gap %	Weighted average difference between the average gross hourly earnings of male and female employees as a percentage of male gross earnings, based on company reported data. Note that reporting on this metric is inconsistent: some companies report the absolute or uncontrolled pay gap while other control for compensable factors such as role or location.
Board Gender Diversity %	Weighted average ratio of female to male board members (%).
Exposure to controversial weapons ¹ %	Exposure to companies with industry ties to landmines, cluster munitions, chemical weapons or biological weapons. Notes: Industry ties cover ownership, manufacturing and investments. Ties to landmines do not cover related safety products.

¹ As defined in the ESA's Final Report on the draft Regulatory Technical Standards: https://www.esma.europa.eu/sites/default/files/library/jc_2021_03_joint_esas_final_report_on_rts_under_sfdr.pdf

4 Calculation of Metrics

4.1 Data Used for the Calculation

The calculation of index level ESG and SFDR metrics use the following data:

- Index security weights as of the close of the last weekday of the month. The weights do not take into account changes to be effective after the last weekday of the month.
- ESG data as available from MSCI ESG Research as of the last weekday of the month.
- Global Industry Classification Standard (GICS®) classification of companies as of the last weekday of the month.
- Fundamental data of companies as of the last weekday of the month².

The metrics for an MSCI index are generally calculated based on security data for that index.

However, for the following MSCI indexes the metrics are calculated based on security data for the “parent index” or “underlying index”³.

- MSCI Hedged Indexes
- MSCI Daily Hedged Indexes⁴
- MSCI Adaptive Hedged Indexes
- MSCI Cross Hedged Indexes
- MSCI Dividend Point Indexes
- MSCI Risk Control Indexes⁶
- MSCI Decrement Indexes⁶
- MSCI Short & Leveraged Indexes^{6,5}

² For more information, please refer to the MSCI Fundamental Data Methodology available at: <https://www.msci.com/index-methodology>

³ For more information, please refer to the respective index methodology books available at: <https://www.msci.com/index-methodology>

⁴ ESG metrics disclosed only for MSCI indexes that pursue ESG objectives.

⁵ For indexes that combine long and short positions, the metrics are calculated based on security data for the long component index.

4.2 Calculation Details and Formulas

This section shows how the different data (index security weights, ESG data, GICS® classification, Fundamental data) is combined and aggregated to derive each of the index level metrics.

ESG data from MSCI ESG Research is displayed in upper characters. The detailed definition of each ESG datapoint is provided in Appendix 1.

4.2.1 ESG Metrics

Metric Name	Metric Calculation
ESG Score	$\frac{\sum_{i=1}^n (Weight_i \times INDUSTRY_ADJUSTED_SCORE_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> i = index security with ESG score available $Weight_i$ = closing index weight for security i $INDUSTRY_ADJUSTED_SCORE_i$ = ESG score of security i
UNGC Violations %	$\frac{\sum_{i=1}^n (Weight_i \times UNGC\ Violations\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> i = index security with ESG score available $Weight_i$ = closing index weight for security i $UNGC\ Violations\ Factor_i$ = UN Global Compact violations factor for security i <ul style="list-style-type: none"> Equals to 1 if security i fails to comply with UNGC principles ($UNGC_COMPLIANCE_i$ = 'Fail'), otherwise equals to 0
Environmental Pillar Score	$\frac{\sum_{i=1}^n (Weight_i \times ENVIRONMENTAL_PILLAR_WEIGHT_i \times ENVIRONMENTAL_PILLAR_SCORE_i)}{\sum_{i=1}^n (Weight_i \times ENVIRONMENTAL_PILLAR_WEIGHT_i)}$ <p>Where:</p> <ul style="list-style-type: none"> i = index security with Environmental Pillar Score available $Weight_i$ = closing index weight for security i $ENVIRONMENTAL_PILLAR_WEIGHT_i$ = Environmental pillar weight of security i $ENVIRONMENTAL_PILLAR_SCORE_i$ = Environmental pillar score of security i

<p>Enterprise Carbon Intensity</p>	$\frac{\sum_{i=1}^n (Weight_i \times (CARBON_EMISSIONS_SCOPE_12_i + CARBON_EMISSIONS_SCOPE_3_TOTAL_i) / EVIC_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with both Carbon emissions (scope 1 and 2) and EVIC available • $Weight_i$ = closing index weight for security i • $CARBON_EMISSIONS_SCOPE_12_i$ = scope 1 and 2 carbon emissions of security i's issuer (in t CO₂) • $CARBON_EMISSIONS_SCOPE_3_TOTAL_i$ = Estimated scope 3 emissions (total) as defined by the Greenhouse Gas Protocol (in t CO₂) of security i's issuer • $EVIC_i$ = Company enterprise value including cash for security i's issuer (in USD million)
<p>Fossil Fuel Reserves %</p>	$\frac{\sum_{i=1}^n (Weight_i \times Fossil\ Fuel\ Reserves\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $Fossil\ Fuel\ Reserves\ Factor_i$ = Fossil Fuel Reserves factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i's issuer has evidence of owning fossil fuel reserves used for energy applications ($FF_RESERVES_ENERGY_APPLICATION_i = 'True'$), otherwise equals to 0
<p>Green Revenues %</p>	$\frac{\sum_{i=1}^n (Weight_i \times CT_TOTAL_MAX_REV_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $CT_TOTAL_MAX_REV_i$ = Clean tech revenue for security i
<p>Physical Risk Climate VaR%</p>	$\frac{\sum_{i=1}^n (Weight_i \times PHYSICAL\ RISK\ CLIMATE\ VAR_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with extreme weather Climate VaR available • $Weight_i$ = closing index weight for security i • $PHYSICAL\ RISK\ CLIMATE\ VAR_i$ = extreme weather Climate VaR – aggressive scenario (as defined in section 3.1) for security i

<p>Social Pillar Score</p>	$\frac{\sum_{i=1}^n (Weight_i \times SOCIAL_PILLAR_WEIGHT_i \times SOCIAL_PILLAR_SCORE_i)}{\sum_{i=1}^n (Weight_i \times SOCIAL_PILLAR_WEIGHT_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with Social Pillar Score available • $Weight_i$ = closing index weight for security i • $SOCIAL_PILLAR_WEIGHT_i$ = Social pillar weight of security i • $SOCIAL_PILLAR_SCORE_i$ = Social pillar score of security i
<p>Social Violation (Count)</p>	$\sum_{i=1}^n (Social\ Violations\ Factor_i)$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Social\ Violations\ Factor_i$ = Social violations factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i has very severe social controversies ($SOCIAL_CONTROVERSY_SCORE_i = 0$), otherwise equals to 0
<p>Social Violation (% Constituents)</p>	$\frac{\sum_{i=1}^n (Social\ Violations\ Factor_i)}{\sum_{i=1}^n (i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Social\ Violations\ Factor_i$ = Social violations factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i has very severe social controversies ($SOCIAL_CONTROVERSY_SCORE_i = 0$), otherwise equals to 0
<p>Controversial Weapons %</p>	$\frac{\sum_{i=1}^n (Weight_i \times Controversial\ Weapons\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $Controversial\ Weapons\ Factor_i$ = Controversial weapons factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i has ties to controversial weapons ($CWEAP_TIE_i = 'True'$), otherwise equals to 0
<p>Tobacco involvement Highly Restrictive %</p>	$\frac{\sum_{i=1}^n (Weight_i \times Tobacco\ Highly\ Restrictive\ Screen_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $Tobacco\ Highly\ Restrictive\ Screen_i$ = Screening status for security i

	<ul style="list-style-type: none"> ○ Equals to 1 if security i is screened for Tobacco Involvement at Highly Restrictive level ($TOB_PRODUCER_i = \text{'True'}$ or $TOB_MAX_REV_PCT_i \geq 5$), otherwise equals to 0
Tobacco involvement Moderately Restrictive %	$\frac{\sum_{i=1}^n (Weight_i \times Tobacco\ Moderately\ Restrictive\ Screen_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $Tobacco\ Moderately\ Restrictive\ Screen_i$ = Screening status for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i is screened for Tobacco Involvement at Moderately Restrictive level ($TOB_PROD_MAX_REV_PCT_i \geq 5$ or $TOB_MAX_REV_PCT_i \geq 15$), otherwise equals to 0
Governance Pillar Score	$\frac{\sum_{i=1}^n (Weight_i \times GOVERNANCE_PILLAR_WEIGHT_i \times GOVERNANCE_PILLAR_SCORE_i)}{\sum_{i=1}^n (Weight_i \times GOVERNANCE_PILLAR_WEIGHT_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with Governance Pillar Score available • $Weight_i$ = closing index weight for security i • $GOVERNANCE_PILLAR_WEIGHT_i$ = Governance pillar weight of security i • $GOVERNANCE_PILLAR_SCORE_i$ = Governance pillar score of security i
Board Independence (Weighted Average)%	$\frac{\sum_{i=1}^n (Weight_i \times BOARD_INDEP_PCT_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with Board independence percentage available • $Weight_i$ = closing index weight for security i • $BOARD_INDEP_PCT_i$ = Board independence percentage of security i's issuer
Board Diversity %	$\frac{\sum_{i=1}^n (Weight_i \times CORP_GOV_PCT_WOMEN_BOARD_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with female board members percentage available • $Weight_i$ = closing index weight for security i • $CORP_GOV_PCT_WOMEN_BOARD_i$ = Female board members percentage of security i's issuer

<p>Green Capex%</p>	$\sum_{i=1}^n (Weight_i \times RENEW_ENERGY_CAPEX_VS_TOTAL_CAPEX_PCT_i)$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $RENEW_ENERGY_CAPEX_VS_TOTAL_CAPEX_PCT_i$ = Capital expenditure in renewable power generation assets as a proportion of total company capital expenditure for security i
<p>High Climate Impact Sector Exposure %</p>	$\frac{\sum_{i=1}^n (Weight_i \times High\ Climate\ Impact\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $High\ Climate\ Impact\ Factor_i$ = High climate impact factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i has a GICS® classification that indicates High climate impact sector exposure, otherwise equals to 0 ○ To determine if a GICS® classification indicates High climate impact sector exposure, the High climate impact sector classifications as defined by the EU Delegated Act (i.e., NACE sectors listed in Sections A to H and Section L of Annex I to Regulation (EC) No 1893/2006) are mapped to the GICS® Sub-Industries using the GICS® to NACE mapping⁶
<p>Fossil Fuel-Based Sector Exposure (NACE) %</p>	$\frac{\sum_{i=1}^n (Weight_i \times FF\ Sector\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $FF\ Sector\ Factor_i$ = fossil fuel-based sector factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i has a GICS® classification that indicates fossil fuel-based sector exposure, otherwise equals to 0 <p>On each date that the calculation is performed, the set of GICS® Sub-Industries that indicate fossil fuel-based sector exposure is derived as follows:</p>

⁶ For more information on the mapping, please refer to Appendix B.2 of the Handbook published on December 20, 2019 by the EU Technical Expert Group on Sustainable Finance:

https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/192020-sustainable-finance-teg-benchmarks-handbook_en_0.pdf

	<ul style="list-style-type: none"> • First, the fossil fuel-based sector classifications as defined by the EU Delegated Act (i.e., NACE classifications from Divisions 05 to 09, 19 and 20 of Annex I to Regulation (EC) No 1893/2006) are mapped to the GICS® Sub-Industries using the GICS® to NACE mapping⁷ • Second, the mapped GICS® Sub-Industries are filtered to remove GICS® Sub-Industries with more than 80% weight in the Solutions and Neutral categories of the Low Carbon Transition framework <p>The 80% threshold will be reviewed and adjusted as necessary each time there is a relevant change in the GICS® and/or NACE methodologies or mapping, or a change in the Low Carbon Transition methodology.</p>
<p>Lack of Due Diligence Policy (ILO)%</p>	$\frac{\sum_{i=1}^n (Weight_i \times ILO \text{ Due Diligence Factor}_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $ILO \text{ Due Diligence Factor}_i$ = ILO due diligence factor for security i <ul style="list-style-type: none"> ◦ Equals to 1 if security i's issuer does not have due diligence policies on labor issues addressed by the fundamental ILO Conventions 1 to 8, otherwise: <ul style="list-style-type: none"> ▪ Equity to 1 if $LABOR_POLICY_INTL_RECOGNIZED_M_i$ = 'No', otherwise equals to 0
<p>Gender Pay Gap%</p>	$\frac{\sum_{i=1}^n (Weight_i \times GENDER \text{ PAY GAP RATIO}_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with gender pay gap ratio available • $Weight_i$ = closing index weight for security i • $GENDER \text{ PAY GAP RATIO}_i$ = Gender pay gap ratio (as defined in section 3.1) for security i's issuer
<p>Female: Male Board Diversity Ratio %</p>	$\frac{\sum_{i=1}^n (Weight_i \times CORP_GOV_PCT_WOMEN_BOARD_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with female board members percentage available • $Weight_i$ = closing index weight for security i • $CORP_GOV_PCT_WOMEN_BOARD_i$ = Female board members percentage of security i's issuer

⁷ For more information on the mapping, please refer to Appendix B.2 of the Handbook published on December 20, 2019 by the EU Technical Expert Group on Sustainable Finance:

https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/192020-sustainable-finance-teg-benchmarks-handbook_en_0.pdf

<p>Total Recordable Injury Rate%</p>	$\frac{\sum_{i=1}^n (Weight_i \times TRIR_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> i = index security with total recordable injury rate available $Weight_i$ = closing index weight for security i $TRIR_i$ = Total recordable injury rate per million hours worked (as defined in section 3.1) for security i's issuer
<p>Bribery & Corruption Controversies (Sum)</p>	$\sum_{i=1}^n (CONTR_BRIR_CORRUP_N_TOTAL_i)$ <p>Where:</p> <ul style="list-style-type: none"> i = index issuer (i.e., issuer with at least one index constituent security included in the index) $TRIR_i$ = Total bribery and correction controversy cases of issuer i
<p>Decarbonization %</p>	<p>This metric is calculated at each Semi-Annual Index Review of the index. The metric is not updated between Semi-Annual Index Reviews.</p> $\left(\frac{W_t}{W_1}\right)^{\frac{2}{t-1}}$ <p>Where:</p> <ul style="list-style-type: none"> t = number of Semi-Annual Index Reviews since the index Base Date W_t = Enterprise Carbon Intensity (t CO2/\$M EVIC) as of t W_1 = Enterprise Carbon Intensity (t CO2/\$M EVIC) as of index Base Date
<p>Overlap between the benchmark and its investable universe (using the active share at asset level)</p>	$\left[\sum_{i=1}^n Abs (Weight\ Parent_i - Weight_i) \right] / 2$ <p>Where:</p> <ul style="list-style-type: none"> i = index security of parent index $Weight\ Parent_i$ = parent index closing index weight for security i $Weight_i$ = closing index weight for security i
<p>Weighted Average Carbon Intensity (t CO2e/\$M SIs)</p>	$\frac{\sum_{i=1}^n (Weight_i \times (CARBON_EMISSIONS_SCOPE_12_i + CARBON_EMISSIONS_SCOPE_3_TOTAL_i) / SALES_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> i = index security with both Carbon emissions (scope 1 and 2) and Sales available $Weight_i$ = closing index weight for security i $CARBON_EMISSIONS_SCOPE_12_i$ = scope 1 and 2 carbon emissions of security i's issuer (in t CO2)

	<ul style="list-style-type: none"> • $CARBON_EMISSIONS_SCOPE_3_TOTAL_i$ = Estimated scope 3 emissions (total) as defined by the Greenhouse Gas Protocol (in t CO2) of security i's issuer • $SALES_i$ = Company sales for security i's issuer (in USD million)
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4.2.2 SFDR Mandatory Metrics

Metric Name	Metric Calculation
Carbon Footprint	Not available yet.
GHG Intensity of Investee Companies	Not available yet.
Exposure to companies active in fossil fuel sector %	$\frac{\sum_{i=1}^n (Weight_i \times Active\ Fossil\ Fuel\ Sector\ Exposure\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $Active\ Fossil\ Fuel\ Sector\ Exposure\ Factor_i$ = Active Fossil Fuels Sector Exposure factor for security i <p>Equals to 1 if security i's issuer has evidence of owning fossil fuel reserves used for energy applications ($ACTIVE_FF_SECTOR_EXPOSURE_i = 'True'$), otherwise equals to 0</p>
Share of non-renewable energy consumption and production %	Not available yet.
Energy consumption intensity per high impact climate sector	Not available yet.
Activities negatively affecting biodiversity - sensitive areas	Not available yet.
Emissions to water	Not available yet.

Hazardous Waste Ratio	Not available yet.
Violations of UN Global Compact principles and Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises	$\frac{\sum_{i=1}^n (Weight_i \times Very\ Severe\ Controversies\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with ESG score available • $Weight_i$ = closing index weight for security i • $Very\ Severe\ Controversies\ Factor_i$ = very severe controversies factor for security i <ul style="list-style-type: none"> ○ Equals to 1 if security i is flagged for a very severe controversy ($OVERALL_FLAG_i$ = 'Red'), otherwise equals to 0
Lack of processes and compliance mechanisms to monitor compliance with UN Global Compact principles and OECD Guidelines for Multinational Enterprises %	Not available yet.
Unadjusted Gender Pay Gap %	$\frac{\sum_{i=1}^n (Weight_i \times GENDER\ PAY\ GAP\ RATIO_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with gender pay gap ratio available • $Weight_i$ = closing index weight for security i <p>$GENDER\ PAY\ GAP\ RATIO_i$ = Gender pay gap ratio (as defined in section 3.1) for security i's issuer</p>
Board Gender Diversity %	$\frac{\sum_{i=1}^n (Weight_i \times CORP_GOV_PCT_WOMEN_BOARD_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p> <ul style="list-style-type: none"> • i = index security with female board members percentage available • $Weight_i$ = closing index weight for security i <p>$CORP_GOV_PCT_WOMEN_BOARD_i$ = Female board members percentage of security i's issuer</p>
Exposure to controversial weapons %	$\frac{\sum_{i=1}^n (Weight_i \times SFDR\ Controversial\ Weapons\ Factor_i)}{\sum_{i=1}^n (Weight_i)}$ <p>Where:</p>

	<ul style="list-style-type: none"> • i = index security • $Weight_i$ = closing index weight for security i • $SFDR\ Controversial\ Weapons\ Factor_i$ = SFDR controversial weapons factor for security i Equals to 1 if security i has ties to cluster munitions, landmines, biological/chemical weapons ($CONTRO_WEAP_CBLMBW_ANYTIE_i = 'True'$), otherwise equals to 0
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4.2.3 Percentage of Coverage

For each of the ESG and SFDR metrics, MSCI discloses the corresponding percentage of coverage of the underlying ESG data used for the ESG metric calculation.

The percentage of coverage is derived by dividing the number of index constituent securities that have underlying ESG data available with the total number of index constituent securities.

For example, the percentage of coverage for the ESG Score metric is calculated as follows:

$$\frac{\text{Number of index constituent securities with } INDUSTRY_ADJUSTED_SCORE \text{ available}}{\text{Total number of index constituent securities}}$$

Where:

- $INDUSTRY_ADJUSTED_SCORE_i$ = ESG score of security i

5 Maintenance of Metrics

5.1 Ongoing Review and Publication

The ESG and SFDR metrics are calculated once a month using end of month data, as described in section 4.1.

5.2 Correction Policy

In certain circumstances, such as errors in the calculation of the metrics or in the input data used for the calculation, MSCI reserves the right to correct the ESG metrics information, and in such case would release a relevant announcement accordingly.

Appendix 1: ESG Data Definitions

The list of ESG datapoints (“Factors”) provided by MSCI ESG Research and used for the calculation of metrics is provided below.

Field Name (Column Header)	Factor Name	Factor Description
ACTIVE_FF_SECTOR_EXPOSURE	Active Fossil Fuel Sector Exposure	Company’s exposure to oil and gas and thermal coal related revenue generating activities. Metric does not include revenue generating activities from metallurgical coal, and storage and transportation of coal.
BOARD_INDEP_PCT	Board Independence Percentage	The percentage of board members that meet our designated criteria for independence. For companies with a two-tier board, the calculation is based on members of the Supervisory Board only.
CARBON_EMISSIONS_SCOPE_12	Carbon Emissions - Scope 1+2 (metric tons)	This figure represents the company's most recently reported or estimated Scope 1 + Scope 2 greenhouse gas emissions (if available). Scope 1 emissions are those from sources owned or controlled by the company, typically direct combustion of fuel as in a furnace or vehicle. Scope 2 emissions are those caused by the generation of electricity purchased by the company.
CARBON_EMISSIONS_SCOPE_3_TOTAL	Carbon Emissions Scope 3 - Total Emissions Estimated	Estimated scope 3 emissions (total) as defined by the Greenhouse Gas Protocol [tCO2e/yr].
CARBON_EMISSIONS_SCOPE_12_KEY	Carbon Emissions - Scope 1+2 KEY	This field indicates whether the Scope 1 + 2 emissions figure was reported by the company or estimated. See the Carbon Estimation Methodology for details.
CONTRO_WEAP_CBLMBW_ANYTIE	Exposure to controversial weapons (landmines, cluster munitions, chemical weapons and biological weapons)	Company has an industry tie to landmines, cluster munitions, chemical weapons or biological weapons. Note: industry tie includes ownership, manufacture or investment. Landmines do not include related safety products.
CONTR_BRIB_CORRUPT_N_TOTAL	Total number of Bribery and Corruption Controversies	Total number of controversy cases in last three years related to company's involvement in: Bribery & corruption issues.
CORP_GOV_PCT_WOMEN_BOARD	Corporate Governance Percentage of Women on the Board	This figure indicates the number of women on the board as a percentage of total board members.

CT_TOTAL_MAX_REV	Environmental Impact Solutions - Maximum Percentage of Revenue	This field represents the total of all revenues derived from any of the six environmental impact themes including alternative energy, energy efficiency, green building, pollution prevention, sustainable water, or sustainable agriculture.
CWEAP_TIE	Controversial Weapons - Any Tie	Companies that have any ties to cluster munitions, landmines, biological / chemical weapons, depleted uranium weapons, blinding laser weapons, incendiary weapons, and/or non-detectable fragments.
ENVIRONMENTAL_PILLAR_SCORE	Environmental Pillar Score	The Environmental Pillar Score represents the weighted average of all Key Issues that fall under the Environment Pillar.
ENVIRONMENTAL_PILLAR_WEIGHT	Environmental Pillar Weight	The Environmental Pillar Weight represents the sum of the weights of all Key Issues that fall under the Environment Pillar.
FF_RESERVES_ENERGY_APPLICATION	Fossil Fuel Reserves – Energy Application	This factor identifies companies, regardless of their industries, with evidence of owning fossil fuel reserves used most likely for energy applications. For high intensity industries (Energy, Utilities, Diversified Metals & Mining), this factor flags companies with evidence of fossil fuel reserves (excluding metallurgical coal). For other industries, it flags companies with evidence of fossil fuel reserves (excluding metallurgical coal) and deriving revenue from business segments associated with energy application of fossil fuels such as thermal coal mining, oil & gas exploration & production and downstream activities e.g. refining; distribution & retail; pipeline & transportation; trading and fossil fuel based power generation. Fossil fuel reserves are defined as proved and probable reserves (i.e. 2P) for coal and proved reserves (i.e. 1P) for oil and natural gas. Evidence of owning reserves includes companies providing the exact volume of reserves, and companies making a statement about their ownership of reserves.

GOVERNANCE_PILLAR_SCORE	Governance Pillar Score	The Governance Pillar Score provides an assessment of risk and management practices related to Corporate Governance and Corporate Behavior. The 0-10 score is based on the sum of deductions derived from Key Metrics included in the Corporate Governance (including Board, Pay, Ownership & Control, and Accounting) and Corporate Behavior (including Business Ethics and Tax Transparency) themes. Low scores correspond to companies with weak corporate governance practices, weak business ethics programs, high exposure to corruption risk, and/or involvement in business ethics-related controversies. (Score: 0-10)
GOVERNANCE_PILLAR_WEIGHT	Governance Pillar Weight	The Governance Pillar Weight represents the sum of the weights of all Key Issues that fall under the Governance Pillar.
INDUSTRY_ADJUSTED_SCORE	Final Industry-Adjusted Company Score	The score is calculated by normalizing the Weighted Average Key Issue Score to the Industry peer set, adjusted to reflect any Ratings Review Committee overrides; see the ESG Rating Methodology document for details.
IVA_COMPANY_RATING	ESG Rating	A company's final ESG Rating. To arrive at a final letter rating, the weighted average of the key issue scores are aggregated and companies are ranked from best (AAA) to worst (CCC).
LABOR_POLICY_INTL_RECOGNIZED_M	Policy addressing internationally recognized labor conventions (Yes, No)	Flagged as "Yes" if company has a policy addressing internationally recognized labor conventions for its workforce.
OVERALL_FLAG	Company Summary - Overall Flag	The overall company assessment signals whether a company has a notable controversy related to a company's operations and/or products, and the severity of the social or environmental impact of the controversy.
RENEW_ENERGY_CAPEX_VS_TOTAL_CAPEX_PCT	Renewable power generation CapEx as a proportion of total CapEx (%)	Capital expenditure in renewable power generation assets (wind, solar, biomass, hydro and other renewables) as a proportion of total company capital expenditure (including networks infrastructure, all power generation assets and other capital expenditure) in the most recently reported capital expenditure plan.

SOCIAL_CONTROVERSY_SCORE	Social - Controversy Score	This Social pillar is an assessment of controversies (if any) related to a firm's impact on Customers, Human Rights & Community, and Labor Rights & Supply Chain. The score is derived from the lowest scoring sub-pillar (Customers, Human Rights & Community, and Labor Rights & Supply Chain) within the Social pillar.
SOCIAL_PILLAR_SCORE	Social Pillar Score	The Social Pillar Score represents the weighted average of all Key Issues that fall under the Social Pillar.
SOCIAL_PILLAR_WEIGHT	Social Pillar Weight	The Social Pillar Weight represents the sum of the weights of all Key Issues that fall under the Social Pillar.
TOB_MAX_REV_PCT	Tobacco Total - Maximum Percentage of Revenue	The recent-year percent of revenue, or maximum estimated percent, a company has derived from tobacco-related business activities.
TOB_PROD_MAX_REV_PCT	Tobacco Producer - Maximum Percentage of Revenue	The recent-year percent of revenue, or maximum estimated percent, a company has derived from the manufacture of tobacco products.
TOB_PRODUCER	Tobacco Producer	Companies that manufacture tobacco products, such as cigars, blunts, cigarettes, e-cigarettes, inhalers, beedis, kreteks, smokeless tobacco, snuff, snus, dissolvable and chewing tobacco. This also includes companies that grow or process raw tobacco leaves.
UNGC_COMPLIANCE	Global Compact Compliance	This factor indicates whether the company is in compliance with the United Nations Global Compact principles. The possible values are Fail, Watch List, or Pass. See the ESG Controversies and Global Norms methodology document for detailed explanations.

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