



MSCI ESG Ratings Methodology: Water Stress Key Issue

Contents

Introduction.....	3
Risks associated with this Key Issue	4
Water Stress Key Issue score.....	4
Water Stress Management framework.....	4
Water Stress Management score.....	5
Water Stress Governance & Strategy score.....	6
Water Stress Targets score.....	8
Water Stress Performance score	9
Controversies	11
Water Stress Exposure score	12
Business Exposure score.....	13
Business Segment Exposure score.....	13
Geographic Exposure score	14
Geographic Segment Exposure scores.....	14
Data sources.....	15
Contact us	16

Introduction

This document provides essential information on the components of the Water Stress Key Issue to enable users of ESG Ratings to understand how MSCI Sustainability & Climate’s (MSCI S&C’s)¹ outputs are determined. Water Stress is a Key Issue in the Environmental Pillar of the MSCI ESG Ratings model. Companies are evaluated on the water intensity of their operations, the water stress in their areas of operations, and their efforts to manage water-related risks.

For additional details on the MSCI ESG Ratings Model, refer to the Data, ratings and scores section of “ESG Ratings Methodology.”

Exhibit 1: MSCI ESG Key Issue hierarchy

3 Pillars	10 Themes	33 ESG Key Issues
Environmental	Climate Change	Carbon Emissions
		Climate Change Vulnerability
		Financing Environmental Impact
		Product Carbon Footprint
	Natural Capital	Biodiversity & Land Use
		Raw Material Sourcing
	Water Stress	
	Pollution & Waste	Electronic Waste
		Packaging Material & Waste
		Toxic Emissions & Waste
Environmental Opportunities	Opportunities in Clean Tech	
	Opportunities in Green Building	
	Opportunities in Renewable Energy	
Social	Human Capital	Health & Safety
		Human Capital Development
		Labor Management
		Supply Chain Labor Standards
	Product Liability	Chemical Safety
		Consumer Financial Protection
		Privacy & Data Security
		Product Safety & Quality
		Responsible Investment
	Stakeholder Opposition	Community Relations
		Controversial Sourcing
	Social Opportunities	Access to Finance
		Access to Health Care
		Opportunities in Nutrition & Health

¹ MSCI Sustainability and Climate products and services are provided by MSCI Solutions LLC and certain related entities. This communication is subject to the full disclaimer set out at the end of this document.

3 Pillars	10 Themes	33 ESG Key Issues
Governance	Corporate Governance	Board
		Pay
		Ownership & Control
	Corporate Behavior	Accounting
		Business Ethics
		Tax Transparency

Risks associated with this Key Issue

- Operational disruptions to production processes requiring water as a critical input.
- Loss of access to markets through community opposition and heightened regulatory hurdles.
- Increased costs to comply with more stringent regulations and install equipment and systems to reduce water use.
- Higher water use costs.

Water Stress Key Issue score

The Water Stress Key Issue score evaluates the company's level of exposure to, and management of, risks on this Key Issue. The Key Issue score is based on the Exposure score and the Management score using the formula below. The Exposure score and the Management score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue score.

$$KI_i = 7 - (\max(EXP_i, 2) - MGMT_i)$$

Where:

- KI_i is the Key Issue score for company i .
- EXP_i is the Exposure score for company i .
- $MGMT_i$ is the Management score for company i .

Water Stress Management framework

The table below outlines the indicators mapped to their respective components that inform the Water Stress Management score, excluding controversies. MSCI S&C assigns each indicator a default weight. Indicator weights may be adjusted at the company level to reflect the relevance of the indicator to the company's business activities. If a company has no exposure to the business activities covered by an indicator, the indicator is assigned a weight of zero.

Component	Sustainability Indicator
Water Stress Governance & Strategy score	Use of alternative water
	Water recycling rate score
	Executive body responsible for water management strategy and performance
	Programs to reduce water use in value chains
	Scope of water reduction programs at own operations
Water Stress Targets score	Water stress target progress
	Water stress target comprehensiveness
Water Stress Performance score	Freshwater consumption performance relative to peers
	Freshwater withdrawal performance relative to peers
	Water leakage performance relative to peers

Water Stress Management score

The Water Stress Management score evaluates the company's ability to manage its exposure to risks on this Key Issue. It is based on weighted average of the score associated with each relevant indicators, modified by controversies.

This score is derived from indicators that are scored on a 0-10 scale, with 10 corresponding to best practice. Refer to the Analyzing risk management section of "ESG Ratings Methodology" for additional details. Sources are company disclosures except where otherwise indicated.

The following formula is used to calculate the Water Stress Management score - Excluding Controversies:

$$MGMT_i = \sum Indicator_Score_{j,i} * Indicator_Weight_{j,i}$$

Where:

- $MGMT_i$ is the Management score - Excluding Controversies for company i .
- $Indicator_Score_{j,i}$ is the score of indicator j for company i .
- $Indicator_Weight_{j,i}$ is the weight of indicator j for company i .

The following formula is used to calculate the scores for the components

$$COMP_{c,i} = \sum_{j \in c} Indicator_Score_{j,i} * Indicator_Weight_Scaled_{j,i}$$

Where:

- $COMP_{c,i}$ is the component score for component c , for company i .
- $Indicator_Score_{j,i}$ is the score of indicator j for company i .
- $Indicator_Weight_Scaled_{j,i}$ is the scaled weight of indicator j for company i .
- $j \in c$ indicates that the summation is over all indicators belonging to component c .

The following formula is used to calculate the weights for the components

$$COMP_Weight_{c,i} = \sum_{j \in c} Indicator_Weight_{j,i}$$

Where:

- $COMP_Weight_{c,i}$ is the component weight for component c for company i .
- $Indicator_Weight_{j,i}$ is the weight of indicator j for company i .
- $j \in c$ indicates that the summation is over all indicators belonging to component c .

The definitions of the data points in each component are given below:

Water Stress Governance & Strategy score

The Water Stress Governance & Strategy score evaluates the company's governing body to oversee water-related risks and strategy to manage water stress in operations and value chains through water recycling, alternative water use, and other reduction programs. It is expressed as a 0–10 score, where 10 indicates strong initiatives.

- **Use of alternative water**

Definition: Assesses the company's use of water from non-freshwater sources. Expressed as a 0-10 score, with 10 indicating higher usage from non-freshwater sources.

- **Evidence of using alternative water sources**

Definition: Indicates whether there is evidence that the company uses some alternative water sources, but a percentage is not available. Alternative water sources include seawater, brackish water, gray water and rainwater.

- **Percentage of water use from alternative water sources.**

Definition: The amount of water that the company obtains from alternative sources. Alternative water sources include seawater, brackish water, gray water, and rainwater.

- **Scope of water reduction programs at own operations**

Definition: Assesses the extent to which the company has implemented water reduction measures at its direct operations.

- **Programs to reduce water use in value chains**

Definition: Assesses the extent to which the company has implemented or supported operational programs aimed at reducing water use in its value chain.

- **Water recycling rate score**

Definition: Assesses the company's water recycling rate based on the company's reported value. Expressed as a 0-10 score, with 10 indicating a higher recycling rate.

- **Water recycling rate**

Definition: The percentage of recycled or recirculated water of total water usage.

- **Executive body responsible for water management strategy and performance**

Definition: Assesses the governing level of water strategy and performance oversight assigned to dedicated individuals or a committee. Expressed as a 0-10 score, with 10 indicating CEO or board-level oversight.

- **CEO is responsible for water management strategy and performance**

Definition: Indicates whether the CEO is responsible for water management strategy and performance.

- **CSR or sustainability committee is responsible for water management strategy and performance**

Definition: Indicates whether corporate social responsibility or sustainability committees are responsible for water management strategy and performance.

- **Non-executive- or non-committee-level task force is responsible for water management strategy and performance**

Definition: Indicates whether responsibility for water management strategy and performance is with a nonexecutive- or non-committee-level task force or risk officer.

- **Senior executive or executive committee is responsible for water management strategy and performance**

Definition: Indicates whether a senior executive or executive committee are responsible for water management strategy and performance.

Water Stress Targets score

The Water Stress Targets score evaluates the company's initiatives to set and achieve water reduction targets. It is expressed as a 0–10 score, where 10 indicates strong targets.

The list of indicators and their sub-indicators in Water Stress Targets score are listed below:

- **Water stress target comprehensiveness**

Definition: Assesses the extent to which a company has established measurable water-related targets that are comprehensive in operational scope. Expressed as a 0-10 score, with 10 indicating a quantitative target that covers all relevant segments.

- **Evidence of ongoing Water Stress target**

Definition: Indicates whether the company has disclosed an ongoing target addressing water stress or water resource management.

- **Scope of ongoing Water Stress target**

Definition: Describes the scope and coverage of the company's ongoing target related to water stress management.

- **Water stress target progress**

Definition: Assesses the company's progress toward any ongoing water reduction targets or track record of progress toward historical targets. Expressed as a 0-10 score, with 10 indicating higher progress towards targets.

- **Status of ongoing Water Stress target**

Definition: Measures the current implementation status of the company's ongoing target related to water stress management or reduction.

- **Status of historical Water Stress target**

Definition: Measures the achievement or completion status of the company's historical target related to water stress management or reduction.

Water Stress Performance score

The Water Stress Performance score evaluates the company's performance on water stress metrics, including the company's water withdrawal and/or water consumption intensities (normalized by million USD sales or a relevant unit of production), relative to its peers. It is expressed as a 0-10 score, where 10 indicates strong performance.

The following provides a non-exhaustive overview of the indicators and sub-indicators used in the assessment of the Water Stress Performance score.

- **Freshwater consumption performance relative to peers**

Definition: Assesses the company's performance on freshwater consumption intensity (normalized by sales and/or product), and trend in freshwater consumption intensity, relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Freshwater consumption intensity industry relative score**

Definition: Assesses the company's performance on freshwater consumption intensity (per unit of sales or output), relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average freshwater consumption intensity (sales based)**

Definition: Measures the company's three-year average freshwater consumption intensity (per unit of sales).

- **Three-year average product water-consumption intensity (product based)**

Definition: Measures the company's three-year average product water consumption intensity (per unit of product output). Applicable to Brewers GICS Sub-industry issuers only.

- **Freshwater consumption intensity industry relative trend score**

Definition: Assesses the company's performance on three-year average of year-over-year freshwater consumption intensity (per unit of sales or output) trend, relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average year-over-year freshwater consumption intensity trend (sales based)**

Definition: Measures the company's three-year average of year-over-year freshwater consumption intensity (per unit of sales) trend.

- **Three-year average year-over-year freshwater water-consumption intensity trend (product based)**

Definition: Measures the company's three-year average of year-over-year product water-consumption intensity (per unit of product output) trend. Applicable to Brewers GICS Sub-industry issuers only.

- **Freshwater withdrawal performance relative to peers**

Definition: Assesses the company's performance on freshwater withdrawal intensity (normalized by sales or by units of production), and trend in freshwater withdrawal intensity, relative to its peers. Expressed as a 0-10 score, where 10 indicates strong performance.

- **Freshwater withdrawal intensity industry relative score**

Definition: Assesses the company's performance on freshwater withdrawal intensity (per unit of sales or output), relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average freshwater withdrawal intensity (sales based)**

Definition: Measures the company's three-year average freshwater withdrawal intensity (per unit of sales).

- **Three-year average freshwater withdrawal intensity (product based)**

Definition: Measures the company's three-year average freshwater withdrawal intensity (per unit of product output). Applicable to issuers with power generation only.

- **Freshwater withdrawal intensity industry relative trend score**

Definition: Assesses the company's performance on three-year average of year-over-year freshwater withdrawal intensity (per unit of sales or output) trend, relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average year-over-year freshwater withdrawal intensity trend (sales based)**

Definition: Measures the company's three-year average of year-over-year freshwater withdrawal intensity (per unit of sales) trend.

- **Three-year average year-over-year freshwater withdrawal intensity trend (product based)**

Definition: Measures the company's three-year average of year-over-year freshwater withdrawal intensity (per unit of product output) trend. Applicable to issuers with power generation only.

- **Water leakage performance relative to peers**

Definition: Assesses the company's performance on leakage rates, and trend in leakage rates, relative to industry peers. Expressed as a 0-10 score, where 10 indicates strong performance. Applicable to water utility issuers only.

- **Water leakage industry relative score**

Definition: Assesses the company's performance on water leakage rate, relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average water-leakage rate**

Definition: Measures the company's three-year average water leakage rate.

- **Water leakage industry relative trend score**

Definition: Assesses the company's performance on the three-year average of year-over-year water leakage rate trend, relative to its peers. Expressed as a 0–10 score, where 10 indicates strong performance.

- **Three-year average year-over-year water leakage rate trend**

Definition: Measures the company's three-year average of year-over-year water leakage rate trend.

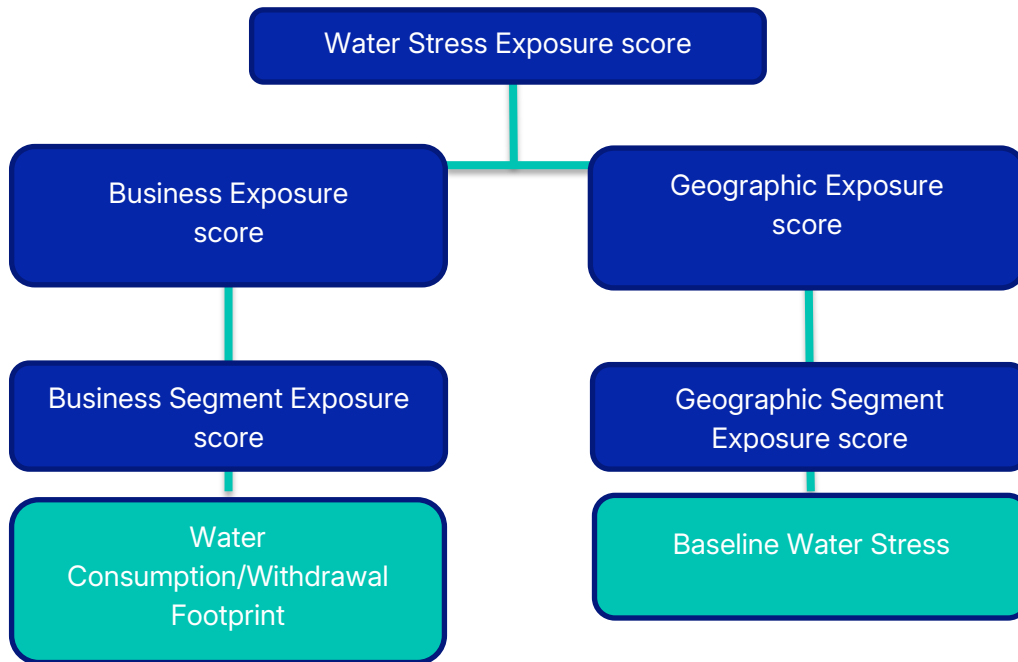
Controversies

A controversy deduction ranging from 0 to 5 points is subtracted from the overall Management score based on the severity, status, and the company's role in the controversies facing the company on this Key Issue. The following categories of controversies are used in the assessment:

- Water conflicts controversies.

For more details on how controversies are included in the MSCI ESG Ratings Model, refer to the Controversies cases section of "ESG Ratings Methodology."

Exhibit 2: Exposure score Components



Water Stress Exposure score

The Water Stress Exposure score evaluates the company’s exposure to risks on this Key Issue. It is based on the average of the Business and Company-Specific Exposure scores, combined with the Geographic Exposure score. The Geographic Exposure score functions as a multiplier on the Business Exposure score, with an impact ranging from -50% to +50%. The Business Exposure score, Geographic Exposure score and Company-Specific Exposure score are scored on a 0-10 scale, with 10 corresponding to the highest risk and 0 corresponding to the lowest risk. Refer to the Analyzing risk exposure section of “ESG Ratings Methodology” for additional details. The following formula is used in the Exposure score calculation:

$$EXP_{WAS,i} = BUS_{WAS,i}(1 + 0.1(GEO_{WAS,i} - 5))$$

Where:

- $EXP_{WAS,i}$ is the Water Stress Exposure score of company i .
- $BUS_{WAS,i}$ is the Business Exposure score of company i .
- $GEO_{WAS,i}$ is the Water Stress Geographic Exposure score of company i .

Business Exposure score

The Business Exposure score is a weighted average of the Business Segment Exposure scores of a company's business segments. Scores are weighted by the proportion of a company's total assets in each business segment,² using the following formula to calculate the Business Exposure score:

$$BUS_{WAS,i} = \sum_{j=1}^{n_i} w_{Assets,i,j} BSE_{WAS,j}$$

Where:

- $BSE_{WAS,j}$ is the Business Segment Exposure score for business segment j .
- $w_{Assets,i,j}$ is the weight of business segment j for company i based on the contribution to total company assets.
- n_i is the number of business segments of company i .

Business Segment Exposure score

The Business Segment Exposure score of a business segment is based on a mapping of the business segment as disclosed by the company to a corresponding business activity. MSCI S&C uses the Standard Industrial Classification (SIC) system along with industry-specific adjustments to define business activities. The score associated with a business activity is used to calculate a Business Segment Exposure score. Each business activity score is determined by the water footprint of the business activity:

$$BSE_{WAS,j} = WF_j$$

Where:

- WF_j is the Water Footprint score for business activity j .

For business activities related to agriculture, tobacco, leather, food and beverages the Business Segment Exposure score is derived as:

$$BSE_{WAS,j} = AWF_j$$

Where:

² The percentage of assets is typically calculated as the company-reported asset value of the segment divided by the total asset value. In certain cases, industry-specific metrics are used to calculate the percentage of assets, such as power generation, production volume or reserve value. In cases where neither segment assets nor a relevant industry-specific proxy is available, the percentage is calculated based on segment revenue.

- AWF_j is the Agricultural Water Footprint score, which is assessed according to the water consumed in business activity j per ton of product.

The Water Footprint score is determined by aggregating the company-level water withdrawal or water consumption per unit of revenue at the business activity level. This indicator is scored on a 0-10 scale, with 10 corresponding to the highest water intensity and 0 to the lowest water intensity.

The Agricultural Water Footprint score is determined by considering the volume of water required to produce a ton of product. Business activities are mapped to specific products such as cereals, oil crops, cotton fabric and tobacco. This indicator is scored on a 0-10 scale, with 10 corresponding to the highest water footprint and 0 corresponding to the lowest water footprint.

Geographic Exposure score

The Geographic Exposure score is a weighted average of the Geographic Segment Exposure scores of the countries, markets and regions in which a company operates. Scores are weighted by the proportion of a company's total assets in each geographic segment through the following equation:

$$GEO_{WAS,i} = \sum_{r=1}^{n_i} w_{Asset,i,r} GSE_{WAS,r}$$

Where:

- $GSE_{WAS,r}$ is the Geographic Segment Exposure score of region r .
- $w_{Asset,i,r}$ is the weight of total assets in region r for company i .
- n_i is the number of geographic segments for company i .

For geographic segments reported as regions (example: Asia Pacific), a nominal GDP-weighted country or market aggregation is used to calculate region-level scores, using the following equation:

$$GSE_{WAS,r} = \sum_{c=1}^{n_r} w_{GDP,r,c} GSE_{WAS,c}$$

Where:

- $GSE_{WAS,c}$ is the Geographic Segment Exposure score of country or market c .
- $w_{GDP,r,c}$ is the specific weight of country or market c within region r .

Geographic Segment Exposure scores

The Geographic Segment Exposure score is determined by the baseline water stress of the region.

$$GSE_{WAS,c} = 2 \times BWS_c$$

Where:

- BWS_c is the Baseline Water Stress score of the country c .

The Baseline Water Stress score is calculated from the ratio of total water withdrawals to the available renewable water supply in a region, such that a higher value indicates greater water stress. When the baseline water stress data is unavailable for a country, a neutral score of 5 is assigned.

Data sources

The following sources are used to determine the Water Stress Exposure score:

The International Earth Rotation Service’s Comprehensive Environmental Data Archive; MSCI S&C; Refinitiv; company disclosures; Hofste, R., S. Kuzma, S. Walker, E.H. Sutanudjaja, et. al., 2019, “Aqueduct 4.0: Updated Decision- Relevant Global Water Risk Indicators,” Technical Note, Washington, DC: World Resources Institute; M.M. Mekonnen and A.Y. Hoekstra, “The green, blue and grey water footprint of crops and derived crop products,” Hydrology and Earth System Sciences 15, no. 5 (2011): 1,577-1,600.

Contact us

About MSCI Inc.

MSCI (NYSE: MSCI Inc.) strengthens global markets by connecting participants across the financial ecosystem with a common language. Our research-based data, analytics and indexes, supported by advanced technology, set standards for global investors and help our clients understand risks and opportunities so they can make better decisions and unlock innovation. We serve asset managers and owners, private-market sponsors and investors, hedge funds, wealth managers, banks, insurers and corporates.

To learn more, please visit www.msci.com/msci.com/contact-us

The process for submitting a formal index complaint can be found on the index regulation page of MSCI's website at: <https://www.msci.com/index-regulation>.

About MSCI Sustainability and Climate Products and Services

MSCI Sustainability and Climate products and services are provided by MSCI Solutions LLC and certain related entities, and are designed to provide in-depth research, ratings and analysis of environmental, social and governance related business practices to companies worldwide. ESG ratings, data and analysis from MSCI Sustainability and Climate are also used in the construction of MSCI Indexes.

AMERICA

United States	+ 1 888 588 4567 *
Canada	+ 1 416 687 6270
Brazil	+ 55 11 4040 7830
Mexico	+ 52 81 1253 4020

EUROPE, MIDDLE EAST & AFRICA

South Africa	+ 27 21 673 0103
Germany	+ 49 69 133 859 00
Switzerland	+ 41 22 817 9777
United Kingdom	+ 44 20 7618 2222
Italy	+ 39 02 5849 0415
France	+ 33 17 6769 810

ASIA PACIFIC

China	+ 86 21 61326611
Hong Kong	+ 852 2844 9333
India	+ 91 22 6784 9160
Malaysia	1800818185 *
South Korea	+ 82 70 4769 4231
Singapore	+ 65 67011177
Australia	+ 612 9033 9333
Taiwan	008 0112 7513 *
Thailand	0018 0015 6207 7181 *
Japan	+ 81 3 4579 0333

* toll-free

Notice and disclaimer

The data, data feeds, databases, reports, text, graphs, charts, images, videos, recordings, models, metrics, analytics, indexes, ratings, scores, cases, estimates, assessments, software, websites, products, services and other information and materials contained herein or delivered in connection with this notice (collectively, the "Information") are copyrighted, trade secrets (when not publicly available), trademarks and proprietary property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), MSCI's licensors, direct or indirect suppliers and authorized sources, and/or any third party contributing to the Information (collectively, with MSCI, the "Information Providers"). All rights in the Information are reserved by MSCI and its Information Providers and user(s) shall not, nor assist others to, challenge or assert any rights in the Information.

Unless you contact MSCI and receive its prior written permission, you must NOT use the Information, directly or indirectly, in whole or in part (i) for commercial purposes, (ii) in a manner that competes with MSCI or impacts its ability to commercialize the Information or its services, (iii) to provide a service to a third party, (iv) to permit a third party to directly or indirectly access, use or resell the Information, (v) to redistribute or resell the Information in any form, (vi) to include the Information in any materials for public dissemination such as fund factsheets, market presentations, prospectuses, and investor information documents (e.g. KIID or KIDs), (vii) to create or as a component of any financial products, whether listed or traded over the counter or on a private placement basis or otherwise, (viii) to create any indexes, ratings or other data products, including in derivative works combined with other indexes or data or as a policy, product or performance benchmarks for active, passive or other financial products, (ix) to populate a database, or (x) to train, use as an input to, or otherwise in connection with any artificial intelligence, machine learning, large language models or similar technologies except as licensed and expressly authorized under MSCI's AI Contracting Supplement at <https://www.msci.com/legal/supplemental-terms-for-client-use-of-artificial-intelligence>.

The intellectual property rights of MSCI and its Information Providers may not be misappropriated or used in a competitive manner through the use of third-party data or financial products linked to the Information, including by using an MSCI index-linked future or option in a competing third-party index to provide an exposure to the underlying MSCI index or by using an MSCI index-linked ETF to create a financial product that provides an exposure to the underlying MSCI index without obtaining a license from MSCI.

The user or recipient of the Information assumes the entire risk of any use it may make, permit or cause to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, SUITABILITY, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION. Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall MSCI or any other Information Provider have any liability arising out of or relating to any of the Information, including for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages, even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited.

The Information, including index construction, ratings, historical data, or analysis, is not a prediction or guarantee of future performance, and must not be relied upon as such. Past performance is not indicative of future results. The Information may contain back tested data. Back-tested performance based on back-tested data is not actual performance but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy. The Information may include "Signals," defined as quantitative attributes or the product of methods or formulas that describe or are derived from calculations using historical data. Signals are inherently backward-looking because of their use of historical data, and they are inherently inaccurate, not intended to predict the future and must not be relied upon as such. The relevance, correlations and accuracy of Signals frequently change materially over time.

The Information may include data relating to indicative prices, evaluated pricing or other information based on estimates or evaluations (collectively, "Evaluations") that are not current and do not reflect real-time traded prices. No evaluation method, including those used by the Information Providers, may consistently generate evaluations or estimates that correspond to actual "traded" prices of any relevant securities or other assets. Evaluations are subject to change at any time without notice and without any duty to update or inform you, may not reflect prices at which actual transactions or collateral calls may occur or have occurred. The market price of securities, financial instruments, and other assets can be determined only if and when executed in the market. There may be no, or may not have been any, secondary trading market for the relevant securities, financial instruments or other assets. Private capital, equity, credit and other assets and their prices may be assessed infrequently, may not be priced on a secondary market, and shall not be relied upon as an explicit or implicit valuation of a particular instrument. Any reliance on fair value estimates and non-market inputs introduces potential biases and subjectivity. Internal Rate of Return metrics are not fully representative without full disclosure of fund cash flows, assumptions, and time horizons.

The Information does not constitute, and must not be relied upon as, investment advice, credit ratings, or proxy advisory or voting services. None of the Information Providers, their products or services, are fiduciaries or make any recommendation, endorsement, or approval of any investment decision or asset allocation. Likewise, the Information does not represent an offer to sell, a solicitation to buy, or an endorsement of any security, financial product, instrument, investment vehicle, or trading strategy, whether or not linked to or in any way based on any MSCI index, rating, subcomponent, or other Information (collectively, "Linked Investments"). The Information should not be relied on and is not a substitute for the skill, judgment and experience of any user when making investment and other business decisions. MSCI is not responsible for any user's compliance with applicable laws and regulations. All Information is impersonal, not tailored to the needs of any person, entity or group of persons, not objectively verifiable in every respect, and may not be based on information that is important to any user.

It is not possible to invest in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI makes no assurance that any Linked Investments will accurately track index performance or provide positive investment returns. Index returns do not represent results of actual trading of investable assets/securities. MSCI maintains and calculates indexes but does not manage assets. The calculation of indexes and index returns may deviate from the stated methodology. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase securities underlying the index or Linked Investments. The imposition of these fees and charges would cause the performance of a Linked Investment to be different than the MSCI index performance.

Information provided by MSCI Solutions LLC and certain related entities ("MSCI Solutions"), including materials utilized in MSCI sustainability and climate products, have not been submitted to, nor received approval from any regulatory body. MSCI sustainability and climate offerings, research and data are produced by, and ratings are solely the opinion of MSCI Solutions. Other MSCI products and services may utilize information from MSCI Solutions, Barra LLC or other affiliates. More information can be found in the relevant methodologies on www.msci.com. MSCI Indexes are administered by MSCI Limited (UK) and MSCI Deutschland GmbH. No regulated use of any MSCI private real assets indexes in any jurisdiction is permitted without MSCI's express written authorization. The process for applying for MSCI's express written authorization can be found at: <https://www.msci.com/index-regulation>.

MSCI receives compensation in connection with licensing its indexes and other Information to third parties. MSCI Inc.'s revenue includes fees based on assets in Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of msci.com. Issuers mentioned in MSCI Solutions materials or their affiliates may purchase research or other products or services from one or more MSCI affiliates, manage financial products such as mutual funds or ETFs rated by MSCI Solutions or its affiliates or are based on MSCI Indexes. Constituents of MSCI equity indexes are listed

companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Constituents in MSCI Inc. equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. MSCI Solutions has taken steps to mitigate potential conflicts of interest and safeguard the integrity and independence of its research and ratings.

MIFID2/MIFIR notice: MSCI Solutions does not distribute or act as an intermediary for financial instruments or structured deposits, nor does it deal on its own account, provide execution services for others or manage client accounts. No MSCI product or service supports, promotes or is intended to support or promote any such activity. MSCI Solutions is an independent provider of sustainability and climate data. All use of indicative prices for carbon credits must comply with any rules specified by MSCI. All transactions in carbon credits must be traded "over-the-counter" (i.e. not on a regulated market, trading venue or platform that performs a similar function to a trading venue) and result in physical delivery of the carbon credits.

You may not remove, alter, or obscure any attribution to MSCI or notices or disclaimers that apply to the Information. MSCI, Barra, RiskMetrics, and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P Dow Jones Indices. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and S&P Dow Jones Indices. Terms such as including, includes, for example, such as and similar terms used herein are without limitation.

MSCI and its Information Providers may use automated technologies and artificial intelligence to help generate content and output incorporated in the Information.

Privacy notice: For information about how MSCI collects and uses personal data, please refer to our Privacy Notice at: <https://www.msci.com/privacy-pledge>. For copyright infringement claims contact us at dmca@msci.com. This notice is governed by the laws of the State of New York without regard to conflict of laws principles.