

**MSCI AUSTRALIA
QUARTERLY
PRIVATE
INFRASTRUCTURE
FUND INDEX
(UNFROZEN)
METHODOLOGY**

July 2021



Contents

1	Introduction	3
2	MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) Methodology	4
2.1	Initial Inclusion Requirements.....	4
2.2	Change in Composition	5
2.3	Index Series.....	6
3	Data Provision Requirements.....	7
3.1	Net Asset Value Reporting Requirements	7
3.2	Other Data Requirements.....	7
3.3	Infrastructure Sector Weightings.....	7
4	Index Calculation Methodology.....	8
4.1	Total Return.....	8
4.2	Fund Return	8
4.3	Index Return	9
4.4	Longer Term Returns	9
4.5	Other Market Information Reporting	10
4.6	Data Preparation For Index Calculation.....	11
4.7	Rules for Performance Reporting.....	11
5	Governance of the Index.....	13
5.1	MSCI Australia Unlisted Infrastructure Index Advisory Group (UIFIAG)	13
6	Appendix I.....	14
6.1	Classification based on Infrastructure Sectors.....	14
6.2	Classification based on Regulated Asset Type.....	16
6.3	Classification based on Contracted Asset Type	16
6.4	Classification based on Development TYPE.....	17
6.5	Classification based on Asset Use.....	17
6.6	Classification based on Hedging Strategy.....	18
7	Appendix II.....	19
7.1	Versioning Table.....	19

1 Introduction

The objective of the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) (“the Index”) is to accurately measure the performance of unlisted private infrastructure funds and mandates domiciled in Australia. The constituents of the index are private infrastructure funds and mandates that are held in professionally managed portfolios. The Index is produced on a quarterly basis, is value-weighted based on the Net Asset Value (“NAV”) of its constituent funds each quarter and is denominated in Australian Dollars (AUD).

Private Infrastructure is a relatively illiquid and heterogeneous asset class. Each investment asset held by a fund could differ from all others in terms of its asset type, location, size and physical characteristics. The time and cost involved in transactions are significant. The MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) is based on Net Asset Values of the underlying funds. The infrastructure asset values used by the funds to calculate NAV are asset valuations. It is not possible to create representative indexes using only transactions, as unlisted funds’ investments are illiquid, and transactions are infrequent.

MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) is governed by [MSCI Real Estate – Index Policies](#) and [MSCI Global Data Standards for Real Estate Investments](#).



2 MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) Methodology

2.1 INITIAL INCLUSION REQUIREMENTS

INCLUSION REQUIREMENTS FOR MSCI AUSTRALIA QUARTERLY PRIVATE INFRASTRUCTURE FUND INDEX (UNFROZEN)

The MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) comprises funds and/or mandates that adhere to specific criteria relating to their investment mandate and their structure. The index inclusion criteria at point of inclusion for a fund/mandate specifies that it:

1. should be a professionally managed unlisted vehicle with investment in the infrastructure asset class. Listed funds, funds of funds, debt funds and derivative funds are not eligible for inclusion within the Index,
2. should be domiciled in Australia,
3. should be registered as an open-ended or semi open-ended fund that are open for new contributions from investors,
 - Semi open-ended funds are those open-ended funds where investors may be subject to an initial “lock up” for the first 3 to 5 years of the life, during which either
 - i. investors are not permitted to redeem their investment or
 - ii. redemptions by investors are restricted to a maximum fixed percentage of their investment in any one year
4. provides NAV per unit at least on a quarterly basis, and
5. there is no restriction on offshore exposure.

In addition to the above inclusion criteria, the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) includes funds/mandates which have both hedged and unhedged strategies (hedging here refers to currency hedging practices adopted by the fund manager).

2.2 CHANGE IN COMPOSITION

Index composition changes may result from fund liquidations, as well as other changes to MSCI's access to fund data, including newly launched or existing funds providing their data to MSCI. Where the resulting index composition change is deemed material, as defined in the [MSCI Real Estate – Index Policies](#), MSCI will publish an index announcement on the MSCI website describing the change.

The historical data provided by any data provider withdrawing from the index will be retained and continue to be used in index calculations. For an index with unfrozen history, new fund data that has met MSCI's quality standard will be included in the index historically.

All index compositions are checked for Fund Confidentiality Rules and Fund Dominance Rules defined below.

Any index may be discontinued or suspended, without notice, if fewer than the required minimum number of funds are eligible and available for inclusion, or if one portfolio or fund dominates the composition, when applying a given methodology to a market. MSCI may resume calculation of such indexes if over time enough funds become eligible and available.

The addition of new funds and withdrawal/termination of existing funds are normal events in the evolution of the MSCI Private Infrastructure Indexes. However, for the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) the following additional requirements and clarifications apply:

New Funds:

- a. Funds joining the Index are required to provide sufficient and complete data to compile the longest possible history of their investment performance, subject to a minimum of either three years or the period from date of launch of the fund
- b. As per the unfrozen index methodology, the returns of new funds will impact the historical returns of the Index. A change of mandate, structure, branding or manager does not warrant the removal of historical performance from the index.

Withdrawn Funds:

- a. Withdrawal from the Index should be through written communication to MSCI and where possible, one quarter prior to the next Index release.



Re-admitted Funds:

- a. In order to be re-admitted to the Index, the funds must provide MSCI with the data to calculate their investment performance during the whole period since their last inclusion in the Index.
- b. Re-admitted funds are subject to the same eligibility requirements as potential new constituents.

Formal communication of a material change in the index composition will be done through an Index Announcement made available at www.msci.com, in accordance with the thresholds defined in the [MSCI Real Estate – Index Policies](#).

2.3 INDEX SERIES

In addition to the headline index, for all fund index series the standard index publication consists of two series of indexes which are reported on pre and post fee basis i.e. the calculated returns are gross and net of management fees, respectively.

- a. **Domestic Funds:** Includes funds with NAV exposure of 80% or more in Australia
- b. **Other Funds:** Includes funds with NAV exposure of less than 80% in Australia

The eligibility of the funds included in domestic or other funds sub-indexes is reviewed on a quarterly basis at the point of inclusion, as well as prospectively.

3 Data Provision Requirements

3.1 NET ASSET VALUE REPORTING REQUIREMENTS

In addition to the standard requirements, as part of the [MSCI Global Data Standards for Real Estate Investments](#), there are additional requirements for the Net Asset Value. These requirements are:

- a. Funds are required to report their NAV per unit on at least a quarterly basis and to have done so for the whole of the period of their performance history within the Indexes.
- b. Constituents of the Indexes must agree to calculate their NAV on a consistent basis from quarter to quarter. This basis will be as specified in their own articles of association (or equivalent).

3.2 OTHER DATA REQUIREMENTS

In addition to the NAV reporting and standard reporting under [MSCI Global Data Standards for Real Estate Investments](#), constituents of the Index must agree to disclose quarterly to MSCI the extent of cross-holdings (holdings in other funds that are also constituents of the Index).

3.3 INFRASTRUCTURE SECTOR WEIGHTINGS

Funds are required to provide asset level sector allocations based upon the Gross Asset Values (GAVs) of the underlying portfolio. These are aggregated and reported at sector level in the market information products. To ensure consistency in the sector weightings reported in the products produced by MSCI, holding of derivative instruments should be recorded allocated to their appropriate sector or segment, whenever possible. Those that cannot be assigned to a specific sector/segment, because they represent a variety of segments should be assigned to the segment "Other". Detailed definitions of various Infrastructure Sectors are available in Appendix 6.1.



4 Index Calculation Methodology

The MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) is constructed by applying the unitized computation methodology.

4.1 TOTAL RETURN

The total return is calculated as the movement in quarter-end NAV per unit, net of new capital invested plus any distributions accrued/declared for the current quarter (“ex-dividend” distributions), expressed as a percentage of the capital employed on a per unit basis, as shown below. If no ex-dividend distribution information is provided or estimated, the distributions included will be those actually made (“as paid”).

Capital employed is defined as the previous quarter-end NAV multiplied by the number of units in issue.

Multi-period measures of performance and index values are time-weighted and calculated by the chain-linked compounding of single quarterly-period percentage measures.

4.2 FUND RETURN

At the fund level, for the unitized return methodology, total return is defined as:

$$Fund\ Return_t = \left(\frac{UtNAV_t - UtNAV_{t-1} - UtNCI_t + UtDist_t}{UtNAV_{t-1}} \right) * 100$$

Where:

$UtNAV_t$ is the post-fee net asset value per unit in quarter t ;

$UtNCI_t$ is the net capital invested per unit in quarter t ;

$UtDist_t$ is the income distribution payable (gross of tax and net of fees) per unit in quarter t ;

The total management fee per unit is added in the numerator of the above formula to calculate the pre-fee fund return. The total management fee is a summation of base management fee and performance fee.

Fund-level tax is defined as the accrued or paid taxes incurred by the fund during the reporting period (e.g. corporate level tax). This excludes tax incurred by investors in the vehicle (withholding tax and therefore franking credits) or local taxes due on individual assets and recoverable Sales Tax (VAT/GST). This also excludes balance sheet items.

All fund total return calculations are undertaken using the NAV, distribution and net capital invested per unit. Applying the components of the total return on a per unit

basis ensures that the performance of funds can be incorporated together in a uniform and consistent structure, ensuring comparability and allowing for more accurate incorporation of any corporate actions (rights issues, open offers, etc.) that might otherwise dilute actual fund total returns.

4.3 INDEX RETURN

To ensure that the weight of each fund, in terms of NAV, is reflected in the overall index total return, each fund’s per unit numerator and denominator is multiplied by the number of units in existence at the end of the quarter. Funds included in the index are weighted according to their NAV at the end of the quarter.

The index return is then calculated as:

$$Index\ Return_t = \left[\frac{\sum_{i=1}^n (UtR_{i,t} * Units_{i,t})}{\sum_{i=1}^n (UtCapEmp_{i,t} * Units_{i,t})} \right] * 100$$

Where:

n is the number of funds in the index sample;

UtR_{i,t} is the return per unit in quarter t of fund i;

UtCapEmp_{i,t} is the capital employed per unit in quarter t of fund i

Units are the current number of units in issue by each fund in the universe, less cross-holdings

4.4 LONGER TERM RETURNS

4.4.1 INDEX VALUES

Starting from a base value of 100, each successive index value is calculated by multiplying the preceding index value by (1+quarterly return):

$$Index_{t=0} = 100$$

$$Index_t = Index_{t-1} \times \left[1 + \frac{TR_t}{100} \right]$$

Where:

TR_t is the total return for the period t-1 to t, expressed as a ratio.

4.4.2 MULTI-PERIOD TIME-WEIGHTED TOTAL RETURN

The basis for calculating all annual and quarterly performance measures is time-weighted. Annual measures are calculated by compounding quarterly figures and annual figures are shown only when four quarters’ figures are available. These measures gives an equal weight to each quarter.



The annual return, for example, is calculated as the percentage change in the index (X_t) over the relevant four quarters.

$$\text{Annual Total Return} = \left[\frac{\text{Index}_t}{\text{Index}_{t-4}} - 1 \right] \times 100$$

4.4.3 ANNUALIZED RATE

The annualized rate is the geometric mean of the individual annual rates of change for a series of years. It is calculated as the n^{th} root of the final indexed score converted back into a percentage:

$$\text{Annualized Rate} = \left[\left(\frac{\text{Index}_t}{\text{Index}_{t=0}} \right)^{1/n} - 1 \right] \times 100$$

Where:

n is the number of years.

Index_t is the final indexed score.

$\text{Index}_{t=0}$ is the initial indexed score.

4.5 OTHER MARKET INFORMATION REPORTING

4.5.1 GEARING

Gearing, or leverage, measures the level of debt in a fund and is expressed as Gross debt as a percentage of GAV

$$\text{Gross Debt over GAV}_t = \left(\frac{\text{Gross Debt}_t}{\text{GAV}_t} \right) * 100$$

Where

Gross Debt_t is the fund level debt in quarter t .

4.5.2 ANNUAL DISTRIBUTION YIELD

Distribution yield reported for the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) is the sum of the distributions per unit over a rolling four quarter period as a percentage of its net asset value per unit at the beginning of the four quarter period and is calculated as follows:

$$\text{Annual Distribution Yield}_t = \left(\frac{\sum_{t=1}^4 \text{Distribution}_t}{\text{NAV}_{t-4}} \right) * 100$$

4.6 DATA PREPARATION FOR INDEX CALCULATION

CROSS-HOLDING ADJUSTMENT

When one fund in the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) has an interest in another fund included in the Index, the second fund's performance will be over-weighted unless an adjustment is made. The performance of the fund that is cross-held will contribute directly at a weight of 100% of its total NAV as well as indirectly, with its additional weight depending upon the ownership percentage held within the cross-holding interest. As a result, the performance of the cross-held fund would, if unadjusted, contribute at over 100% of its total NAV in the performance of the overall Index.

MSCI adjusts for cross holdings in the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) by deducting the amount of the investment from the NAV of the fund in which the investment is made. For the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen), the data is collected for the investments in other funds that are parts of the Index, and the above described adjustment is made. This same adjustment is made for all the sub-indexes, only if a cross-holding is prevalent within any/all of these sub-indexes.

4.7 RULES FOR PERFORMANCE REPORTING

4.7.1 FUND CONFIDENTIALITY RULES

In order to protect the confidentiality of the fund level data provided, MSCI applies strict confidentiality rules, which set the minimum number of constituents necessary to permit the reporting of an index. In any aggregate, the minimum acceptable number of funds is three.

4.7.2 FUND DOMINANCE RULES

In order to avoid the possibility of the weight of one portfolio dominating the representativeness of an index, MSCI employs investor dominance rules when determining the composition of an index.

When calculating an index, a maximum weight for any single contributing fund is calculated based on NAV. When the weight of a contributor in any index series exceeds 75% of index or sub-index NAV, the results will not be reported.



4.7.3 UNFROZEN HISTORY REPORTING

The returns of the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) are unfrozen, which means they do not have fixed histories and returns will be updated when new historical data becomes available or corrections are made. Therefore the inclusion of historical data from a new fund with impacts the historical Index returns.

MSCI reviews each unfrozen national market index annually to decide whether these indexes potentially should also be frozen.

A proposal to freeze an index history is based on an analysis of the likelihood of future changes to historical data, including availability of new data, including:

- Market coverage level: The higher the ratio of MSCI data coverage to the estimated total infrastructure investment market, the greater is the likelihood that historical market results will remain representative through the addition of new funds to the dataset.
- Review of historical restatement impacts: Comparing the difference between published results and results including any newly submitted data gives an indication of the consistency of historical results.
- Trends in numbers of portfolios joining the dataset and their perceived likelihood of supplying historical data.

A proposal to freeze the history of any MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen) will trigger a public consultation with local market participants. If a decision is taken to freeze an index, that decision will be announced to the public before implementation as per the Methodology and Index Consultation Policy described in the [MSCI Real Estate – Index Policies](#) document.

5 Governance of the Index

MSCI uses the following committees to provide overall oversight and governance for benchmark administration for MSCI Private Infrastructure Indexes:

- a. The index is owned, compiled, and calculated by MSCI
- b. Governance is provided by the Private Real Estate Index - Risk and Regulatory Committee (“RRC”), the Index Policy Committee (“IPC”) and the Real Estate Index Committee¹ (“REIC”)

All of the committees are staffed solely by MSCI group company employees with extensive relevant experience.

All committee members are expected to act with integrity as is required of all our employees according to our Code of Ethics and Business Conduct posted on www.msci.com, and are subject to MSCI’s compliance policies, including with respect to confidential information and relevant Chinese Walls. All decisions taken by the committees are the responsibility of their members.

MSCI retains all Intellectual Property Rights (IPRs) in the index methodologies and the index including those variations and derivative methodologies of the standard methodologies as well as those methodologies that may be generated during the course of the Agreement.

MSCI believes that its editorial and operational independence is critical to its objectivity, efficiency and avoiding conflicts of interest.

5.1 MSCI AUSTRALIA UNLISTED INFRASTRUCTURE INDEX ADVISORY GROUP (UIFIAG)

MSCI Australia Unlisted Infrastructure Index Advisory Group is comprised of a set of users and data providers for the MSCI Australia Quarterly Private Infrastructure Fund Index (Unfrozen). The functions of this group include:

- a. Providing feedback to MSCI on the development of content for the Index.
- b. Providing feedback to MSCI on the inclusion and classification rules for funds within the Index, based on investment mandates and actual data.
- c. Providing feedback to MSCI on changes to the technical specification or the rules of the Index.

MSCI believes that its editorial and operational independence is critical to its objectivity, efficiency and avoiding conflicts of interest.

¹ This committee also presides over the MSCI Private Infrastructure Indexes.



6 Appendix I

6.1 CLASSIFICATION BASED ON INFRASTRUCTURE SECTORS

	Definition
Power Generation (excl. renewable energy)	<p>Infrastructure that generates energy or power.</p> <p>Excludes infrastructure that falls under renewable energy.</p> <p>Examples: Nuclear reactor, coal fired power plant.</p>
Power Transmission & Distribution (excl. renewable energy)	<p>Transfer, distribution and storage of power including oil and gas transportation, distribution and storage.</p> <p>Excludes infrastructure that falls under renewable energy.</p> <p>Examples: Electricity transmission grid infrastructure and interconnectors, gas pipelines.</p>
Renewable Energy	<p>Infrastructure that sources energy from natural resources e.g. Wind, sunlight, rain, tides, etc.</p> <p>Examples: Wind farms, hydro-power generation, waste to energy, solar farms.</p>
Water	<p>Water management infrastructure.</p> <p>Examples: Sewage treatment plant, desalination plants, major irrigations systems, flood control systems, drinking water filtration and storage.</p>
Communication	<p>Facilities consisting of the physical plants and/or equipments for disseminating information.</p> <p>Examples: Television and radio transmission stations, mobile telephone towers.</p>

	Definition
Transport (excl. airports)	<p>Facilities consisting of the means and/or equipment necessary for the movement of passengers or goods from one point to another.</p> <p>Excludes Airports.</p> <p>Examples: Road/highway networks, bridges, mass transit system (metro), ports, railways (both for public and private use).</p>
Airports	International and domestic airports.
Public Facilities	<p>Facilities consisting of social infrastructure such as education, health, social housing, convention centres, public car parks, student accommodation</p> <p>Examples: Public buildings and facilities for public use ie hospitals, schools, universities, prisons, convention centres</p>
Cash	Cash or cash equivalent holdings held by the fund on balance sheet.



6.2 CLASSIFICATION BASED ON REGULATED ASSET TYPE

	Definition
Unregulated	<p>Asset where its capacity is fully built or funded to meet contracts with end users.</p> <p>Public Private Partnership (PPP) where a private party provides a public service and in return has rights for management of asset for a contracted period of time.</p> <p>Examples: PPP toll road or desalination plant</p>
Regulated	<p>Generally public owned asset or natural monopoly operating under a corporatised model.</p> <p>Regulation concerned with the nature of access agreement to use the public asset by the private sector or the regulation of monopoly pricing powers. Pricing parameters that directly effect cash flows generally set by government agencies.</p> <p>Examples: Sydney Water, City Rail.</p>
Partially Regulated	Australian Airports

6.3 CLASSIFICATION BASED ON CONTRACTED ASSET TYPE

	Definition
Uncontracted	<p>Private sector asset where the government provides no revenue guarantees and does not own the distribution network.</p> <p>Developer assumes construction, operating and market risk for the project.</p> <p>Examples: Power generator which is not subject to contractual agreements. Airport, PPP toll road.</p>
Contracted	<p>Regulated assets or assets where long term contracts are in place that avoid the need to for regulation.</p> <p>Examples: Desalination plant, Sydney Water, City Rail.</p>

6.4 CLASSIFICATION BASED ON DEVELOPMENT TYPE

	Definition
Greenfield/ Development	<p>Asset that is under development on land that has previously had no development.</p> <p>Usually have little or no income or yield component, with predominantly long term capital growth potential.</p> <p>Examples: Wind turbine built on undeveloped farm land.</p>
Brownfield & Mature	<p>Former infrastructure asset that is being redeveloped with the intention to be used for infrastructure purposes or has been redeveloped and is currently operational.</p> <p>Existing site that may be redeveloped due to expansion or change in use.</p> <p>Examples: Abandoned factories or industrial areas, contaminated land turned into transportation hubs, roadways or renewable power generators. Existing toll road that is being widened to accommodate additional traffic flows</p>

6.5 CLASSIFICATION BASED ON ASSET USE

	Definition
Social	<p>Projects where the government pays the private party a service fee for the availability of a facility.</p> <p>May include private sector where parties provide ability-based payments.</p> <p>Examples: Universities, schools, hospitals, stadiums, museums and tourism infrastructure. Shadow toll roads (PPP)</p>
Economic	<p>Project revenue is often derived from third parties and the private sector therefore bears demand risk.</p> <p>Examples: Toll roads, airports, ports, water supply.</p>

6.6 CLASSIFICATION BASED ON HEDGING STRATEGY

	Definition
Hedged	Portion of portfolio where where currency hedging has been adopted by the fund manager
Unhedged	Portion of portfolio where where currency hedging has not been adopted by the fund manager

7 Appendix II

7.1 VERSIONING TABLE

Version	Publication Date	Key Changes
V1	July 2021	Release of the MSCI Australia Private Infrastructure Fund Index (Unfrozen) methodology document



Contact us

realestate@msci.com

+ 44 20 7336 4783

AMERICAS

Canada + 1 416 687 6284

US + 1 212 804 3900

EUROPE, MIDDLE EAST & AFRICA

UK + 44 20 7336 9200

France + 44 20 7336 4783

Germany + 49 691 3385 900

Italy + 44 20 7336 9684

Spain + 34 93 467 7403

South Africa + 27 11 656 2115

Sweden + 46 8 400 252 30

ASIA PACIFIC

Australia + 61 2 9033 9300

Hong Kong + 852 2844 9333

Singapore + 65 6826 9339

Japan + 81 3 5211 1455

ABOUT MSCI

MSCI is a leading provider of critical decision support tools and services for the global investment community. With over 50 years of expertise in research, data and technology, we power better investment decisions by enabling clients to understand and analyze key drivers of risk and return and confidently build more effective portfolios. We create industry-leading research-enhanced solutions that clients use to gain insight into and improve transparency across the investment process.

To learn more, please visit

www.msci.com.

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>.

Notice and disclaimer

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the "Information") is the property of MSCI Inc. or its subsidiaries (collectively, "MSCI"), or MSCI's licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the "Information Providers") and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or disseminated in whole or in part without prior written permission from MSCI. All rights in the Information are reserved by MSCI and/or its Information Providers.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit 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, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, 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 any Information Provider have any liability regarding any of the Information 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, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly 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 does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, "Index Linked Investments"). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investible assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance 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.

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. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research LLC and Barra LLC, may be used in calculating certain MSCI indexes. More information can be found in the relevant index methodologies on www.msci.com.

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.'s revenue includes fees based on assets in Index Linked Investments. Information can be found in MSCI Inc.'s company filings on the Investor Relations section of www.msci.com. MSCI ESG Research LLC is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and MSCI's products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD 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 Standard & Poor's. "Global Industry Classification Standard (GICS)" is a service mark of MSCI and Standard & Poor's.

MIFID2/MIFIR notice: MSCI ESG Research LLC 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 ESG Research product or service supports, promotes or is intended to support or promote any such activity. MSCI ESG Research is an independent provider of ESG data, reports and ratings based on published methodologies and available to clients on a subscription basis. We do not provide custom or one-off ratings or recommendations of securities or other financial instruments upon request.

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>.

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 ON THE INDEX REGULATION PAGE OF MSCI'S WEBSITE AT: <https://www.msci.com/index-regulation>.

PRIVACY NOTICE: FOR INFORMATION ABOUT HOW MSCI ESG RESEARCH LLC COLLECTS AND USES PERSONAL DATA CONCERNING OFFICERS AND DIRECTORS, PLEASE REFER TO OUR PRIVACY NOTICE AT [HTTPS://WWW.MSCI.COM/PRIVACY-PLEDGE](https://www.msci.com/privacy-pledge).