MORNINGSTAR Indexes

# Climate Investing with the Morningstar Low Carbon Transition Leaders Indexes


March 2024

**Authors**

Dan Lefkovitz
Strategist,
Morningstar Indexes

Rob Edwards, CFA
Director of Product Management – EMEA & ESG Indexes,
Morningstar Indexes

Evangelos Papoutsis
Senior Quantitative Analyst,
New Product Development,
Morningstar Indexes

Pustav Joshi
Associate Director,
Climate Solutions,
Morningstar Sustainalytics


> “There is a rapidly closing window of opportunity to secure a livable and sustainable future for all.”
>
> – Intergovernmental Panel on Climate Change Synthesis Report 2023

Investors across geography and size are increasingly focused on climate change. Morningstar’s *Voice of the Asset Owner Survey* found that “climate is king” for many institutional fiduciaries, who see shifting weather patterns and the transition to net zero carbon emissions as financially material.[1] Climate-oriented investment strategies are capturing retail assets. More than $500 billion sat in climate-focused funds and exchange-traded funds as of 2023, according to Morningstar data.[2] Most of these assets come from Europe, where regulation is a powerful impetus.

Yet the goal of net zero carbon emissions remains aspirational. The Paris Agreement’s target to limit global warming to 1.5 degrees Celsius beyond preindustrial levels is currently out of reach, based on decarbonization efforts to date. Climate-focused investors have learned to be skeptical of corporate net zero pledges. Distant timelines, reliance on unproven carbon removal technologies, and an overemphasis on the “net” side of the equation allow companies to get a public relations boost while avoiding the difficult work of real emissions reduction.

Climate investors looking to align their portfolios with the transition to a low-carbon economy require a robust toolkit. Corporate $CO_2$ emissions data spanning scopes 1, 2, and 3 are a critical starting point. Low Carbon Transition Ratings from Morningstar Sustainalytics complement emissions data by offering insight into how companies are positioned to compete in an economy transitioning away from fossil fuels. Sustainalytics’ research considers a company’s management efforts across a robust set of indicators that includes targets and governance.

The Morningstar® Low Carbon Transition Leaders Indexes™ offer investors a means of aligning portfolios with companies whose managements are demonstrating progress toward net zero. Through a simple, objective methodology, the indexes represent a practical approach to equity-focused climate investing that does not automatically exclude carbon-intensive sectors. The indexes select on both carbon intensity and a thorough assessment of corporate management efforts. Not only can minimizing deviation from the broad market help avoid underperformance in certain market conditions, it’s also an acknowledgement that fossil-fuel businesses won’t disappear overnight. They can even be part of the solution to climate change.

1 Morningstar Voice of the Asset Owner Survey 2023

2 Stankiewicz, A. 2023. Investing in Times of Climate Change

# Going beyond net zero pledges and carbon footprinting

A number of forces are driving investor need for climate research. First and foremost are risks related to climate change. Damage and losses to property caused by the physical consequences of climate change (wildfires, floods, hurricanes, heat waves, and so on) have become commonplace. Physical climate risk could reduce economic output by 25% in some regions by 2050.[3]

Second is transition risk. Limiting the increase in the global average temperature to well below 2 degrees Celsius above preindustrial levels requires significant emissions reduction. The consequences of decarbonization include changes to consumer behavior and disruption from new technology breakthroughs.

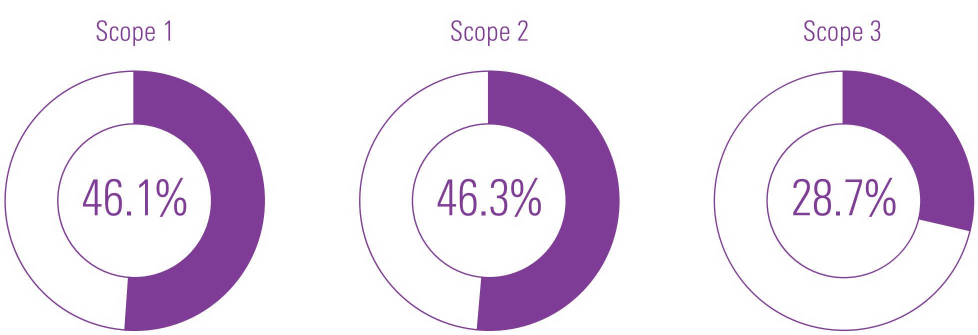
> Climate investors must deploy a robust toolkit to analyze how companies are positioned to achieve net zero targets

Third, mandatory climate-related financial disclosure is becoming a universal reality for companies, with governments around the world adopting the recommendations of the Task Force on Climate-related Financial Disclosures and other groups. In parallel, companies are setting targets and developing strategies to meet the global objective of achieving net zero emissions by 2050.

Climate investors must deploy a robust toolkit to analyze how companies are positioned to achieve net zero targets. The first step is aggregating scope 1, 2, and 3 emissions. Scope 1 represents direct emissions from a company's facilities' fuel energy use and vehicles; scope 2 includes indirect emissions from purchased electricity; and scope 3 covers downstream activities, such as the use of products, franchises, and investments, along with upstream activities associated with the supply chain, waste generation, and business travel. Carbon intensity divides scope 1-3 emissions by enterprise value, which allows for more relevant comparisons across economic sector and asset class.

Corporate emissions reporting remains incomplete. Sustainalytics estimates that roughly 46% of companies worldwide report scope 1 and scope 2 emissions, while less than 29% report scope 3 emissions.

**Exhibit 1: The percentage of global companies reporting emissions is low**

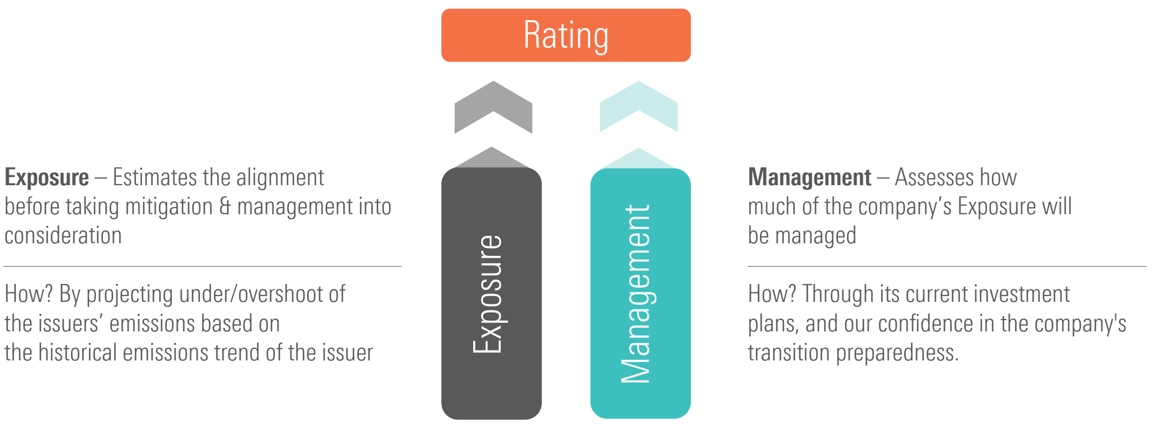



Source: Morningstar Sustainalytics. Data as of 2022.

[3] SwissRe. 2021. The economics of climate change: impacts for Asia.

Low Carbon Transition Ratings, or LCTRs, from Morningstar Sustainalytics are an essential complement to emissions for evaluating a company's progress towards net zero. The ratings are science-based, forward-looking assessments of companies' alignment to a net zero pathway by 2050 and are designed to measure the under/overshoot of each issuer's projected emissions relative to a net zero emissions budget. The alignment is communicated by both the amount of misaligned emissions and the Implied Temperature Rise if the global economy had the same trajectory.

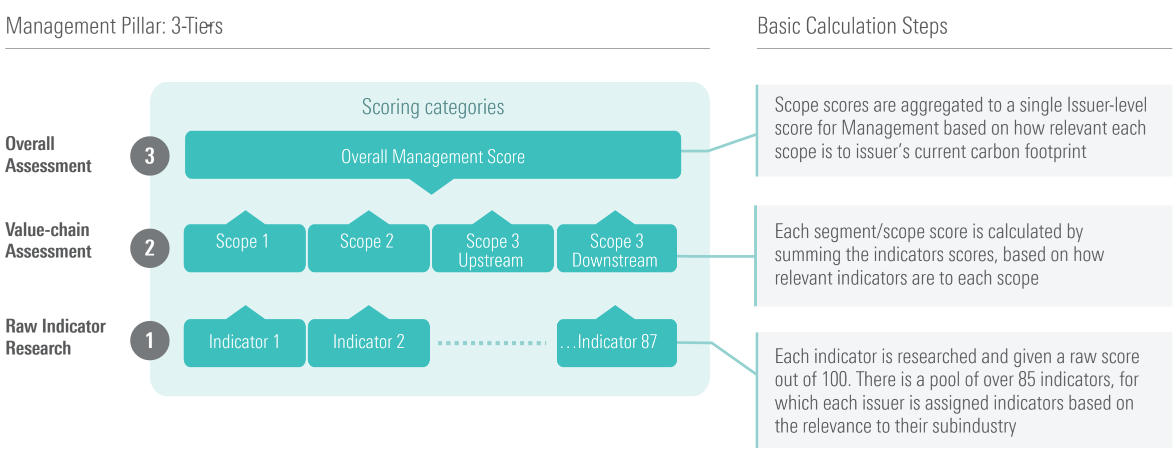
**Exhibit 2: Morningstar Sustainalytics Low Carbon Transition Ratings**




Source: Morningstar Sustainalytics

The Management Score evaluates the quality of policies and programs, strategy, governance, and financial position. It informs the likelihood that the issuers will anticipate risks and manage their emissions in line with expected government policies and market changes and net zero commitments.

**Exhibit 3: Low carbon transition ratings management assessment**




Source: Morningstar Sustainalytics

The Management Score delves into a company's transition plans and assesses its readiness to implement them. To effectively implement the transition, companies need to set transition plans and align governance, business strategy, risk management, and supply chain planning to those plans.

In general, the climate transition leaders have much higher rates of disclosures across indicators. Other contributors to success include:

- Targets and Metrics
- Governance
- Risk Management
- Strategy
- Supply Chain

"Green Revenues" are another important consideration because they represent tangible contributions to the transition to a low-carbon economy. Sustainalytics Impact Metrics aggregate corporate revenue derived from sustainable activities. Climate-related activities include:

- Green Buildings
- Renewable Energy
- Low-Carbon Transportation
- Low-Carbon Agriculture
- Carbon Emissions Reduction
- Climate Change Adaptation

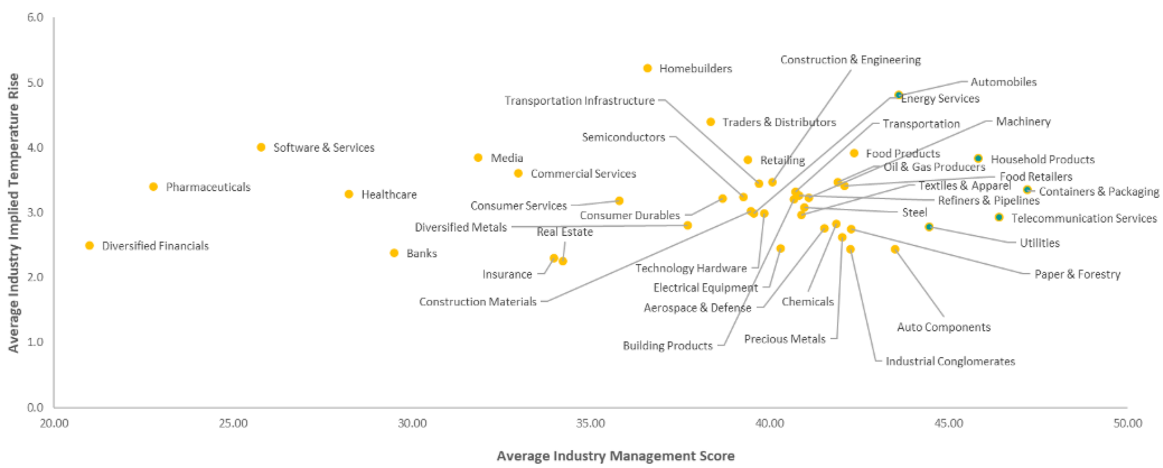
# A global economy highly misaligned to 1.5 degrees celsius

Aggregating the universe of 8,000 companies assessed by Morningstar Sustainalytics with LCTRs as of year-end 2023 paints a dire picture of the global economy's carbon emissions trajectory.

The overall universe is tracking toward an Implied Temperature Rise of 3.1 degrees Celsius and has a mean Management Score of 35.5 on a 100-point scale. This means that if all companies in the world were to overshoot their emissions budget by the same proportion, the world would warm by 3.1 degrees over preindustrial levels. The Weak average Management Score of 35.5 shows that companies are not doing well in managing their climate risk and have plans that (on average) will cause emissions to rise by around 30% over current levels by 2050.

Given that the LCTR considers a Management Score of 50 as Neutral and scores below 45 as Weak, we see that most industries have either Weak or at best Average Management Scores. No industries, on average, track to a neutral or better score, highlighting the need for substantial changes in how they plan to manage climate risk.

**Exhibit 4: Average industry LCTR score**




Source: Morningstar Sustainalytics. Data as of January 31, 2024

That said, some industries are less misaligned than others. Roughly 10% of companies assessed have Strong Management Scores (above 55 points). The best-performing industries come in with mean Management Scores around the 45-point mark, with only three industries—containers and packaging (47.2), telecommunication services (46.4), and household products (45.9) —achieving an Average Management Score.

# Introducing the Morningstar Low Carbon Transition Leaders Indexes

The Morningstar Low Carbon Transition Leaders Indexes are designed to provide diversified, broad-market exposure to companies leading their sector peers in their readiness for—and action towards—climate transition. Eligible companies from the large-mid cap parent index are grouped by sector and ranked according to their Low Carbon Transition Leaders Score, which is based on a combination of a company's current carbon intensity and its Management Score, as measured by Sustainalytics' LCTR. The indexes target the best-scoring 50% of companies from each sector (by market cap). The indexes also seek to emphasize companies that report carbon emissions and are reducing their carbon intensity, as well as those whose business activities contribute positively to the environment.

The Morningstar Low Carbon Transition Leaders Indexes are underpinned by Morningstar Sustainalytics' LCTRs, Impact Metrics, Carbon Emissions Data, Product Involvement Research, and ESG Controversies Research.

### Index family

#### Global variants

Morningstar® Global Low Carbon Transition Leaders Index™

#### Single country indexes

Morningstar® US Low Carbon Transition Leaders Index™

Morningstar® Japan Low Carbon Transition Leaders Index™

#### Regional indexes

Morningstar® Developed Markets Low Carbon Transition Leaders Index™

Morningstar® Developed Markets ex-NA Low Carbon Transition Leaders Index™

Morningstar® Developed Europe Low Carbon Transition Leaders Index™

Morningstar® Emerging Markets Low Carbon Transition Leaders Index™

Morningstar® Asia-Pacific Markets Low Carbon Transition Leaders Index™

Morningstar® Nordic Low Carbon Transition Leaders Index™

### Index methodology

The Morningstar Low Carbon Transition Leaders Indexes[4] exclude certain classes of companies on sustainability criteria, then select based on Morningstar Sustainalytics' assigned Management Scores and Carbon Intensity within sector. Index weightings are tilted based on green revenues. Security capping is applied.

### Reconstitution/rebalancing

The index is reconstituted and rebalanced semi-annually in June and December.

[4] See Index Rulebook for detailed discussion of the methodology.

**Exhibit 5: Index construction summary**

| Starting universe | Index eligibility | Portfolio construction | |
|---|---|---|---|
| • Morningstar Global Target Market Exposure Index<br>  • Large/mid indexes representing the top 85% of the investable market | • Companies must not:<br>  • Have any revenue involvement in controversial weapons, small arms, or tobacco production<br>  • Be noncompliant with the principles of UN Global Compact<br>  • Have a Sustainalytics Controversy Score of 5<br>  • Derive 1% or more of revenue from thermal coal extraction | • A composite Climate Change Leaders score is determined for each company based on a combination of its current carbon intensity and its Management Score, as measured by Sustainalytics' Low Carbon Transition Rating<br>• Companies are grouped by sector and ranked by composite score. The best-scoring 50% of each sector (by market cap) is targeted for inclusion<br>• Green revenue, emissions reporting, and decarbonizing tilt factors are applied<br>• UCITS capping is applied | Morningstar Low Carbon Transition Leaders Indexes |

# What are low carbon transition leaders?

To better illuminate the index methodology, consider four corporate case studies—spanning sector and geography—of index constituents that are leading their sector peers in their readiness for—and action towards—climate transition.

**Exhibit 6: Low carbon transition leaders – company examples**

| Company | Sector | Country |
|---|---|---|
| TotalEnergies | Energy | France |
| Taiwan Semiconductor | Technology | Taiwan |
| Orsted | Industrials | Denmark |
| BMW | Consumer cyclical | Germany |

### TotalEnergies SE

Considered an oil and gas "supermajor," TotalEnergies of France might be a surprising inclusion in a low-carbon transition leaders index given its massive carbon footprint. Total's target to turn net zero operations by 2050, reaffirmed at the recent COP28, is inadequate for a 1.5-degree world. That said, Total has taken concrete steps in the direction of net zero by accounting for carbon pricing in its investment decision-making. Total has raised more than EUR 3 billion in green bonds, primarily to purchase renewable energy generation assets while also investing into research and development on green hydrogen production. Internally, the company has strengthened governance around climate by linking CEO remuneration with climate targets and involving stakeholders in decisions that may be affected by transition pressures.

### Taiwan Semiconductor Manufacturing

Taiwan Semiconductor Manufacturing is the world's largest semiconductor chip manufacturer, with a market share of over 50%. Unlike most other companies in the semiconductor design and manufacturing industry, TSMC's primary operations are in the manufacture of chips. This being an emissions-intensive process, most of TSMC's emissions are scope 1 and 2. The company has set a greenhouse gas reduction target to reduce both its absolute emissions and the emissions intensity of its products. To bring down its carbon intensity, TSMC utilizes an internal carbon price in decision-making. Further, TSMC now aims to use 100% renewable energy for its global operations by 2040, 10 years ahead of its original target. The company also addresses supply chain emissions. It requires Tier 1 suppliers to have their own GHG emissions reductions target and engages with Tier 2 suppliers on emissions reductions. This has resulted in a decline in TSMC's carbon intensity by 15% over the past three years.

### Orsted

Orsted is the largest energy company in Denmark and a world leader in decarbonization. With nearly 70% of the energy it generates coming from renewable sources, primarily wind, Orsted's carbon intensity level is well below the industry median. The company has reduced the emissions intensity of its energy generation and operations by more than 87% since 2006, having declined nearly 40% over the past three years. To grow its renewable energy portfolio, the company has issued more than EUR 2 billion in green bonds. Orsted also expects its suppliers to move to 100% renewable electricity usage. Despite these initiatives, the Danish government ordered Orsted to continue or resume operations at three coal and oil power plants until June 2024, owing to energy security concerns. This may hamper the company's goal of carbon neutrality by 2025.

### BMW

BMW of Germany is one of the world's most popular car manufacturers. With the majority of its emissions coming from sold vehicles, BMW's 10-year climate plan vows to slash emissions per vehicle by one third by 2030. The company's carbon intensity is well below the industry median, having driven down scope 2 emissions by procuring almost 40% of its primary energy from renewables. To comply with the EU's decision to effectively ban fossil-fuel vehicles as of 2030, BMW announced a multimillion-pound investment in a plant in the UK.

# Climate benchmarking analyzed

Climate indexes fill a variety of needs. Some investors, such as pension funds, are looking to protect assets against climate-related risks. Other investors want to be at the forefront of the immediate transition to a 1.5 degrees Celsius scenario. Climate-related reporting is a requirement for many investor types. Indexes are also used to guide strategic asset allocation and provide measuring sticks for active strategies. They underlie passive investments, allowing investors to allocate to companies that support the transition to a low-carbon economy, direct capital toward climate solutions, and mitigate climate-related risks.

Given these use cases, it is instructive to examine index characteristics from several vantage points. First, how do they achieve their climate-related objectives? Next, how do they compare from the perspectives of traditional returns-based and holdings-based analysis? Examining the developed-markets and emerging-markets benchmarks separately demonstrates the climate and financial implications of the different climate change challenges and standards these economies face.

As displayed in exhibit 7, the Morningstar Low Carbon Transition Leaders Indexes are significantly less carbon intensive than the broad equity market portfolios from which they are derived. In the case of developed markets, carbon intensity is reduced by roughly one-third. In the case of emerging markets, a roughly 40% reduction in carbon intensity is achieved.

**Exhibit 7: Portfolio level carbon intensity**

| Index | Carbon intensity (units) | Carbon intensity reduction (%) | Constituent count |
|---|---|---|---|
| Morningstar Developed Markets Low Carbon Transition Leaders | 278.9 | 32.5 | 539 |
| Morningstar Developed Markets Large-Mid Target Market Exposure | 413.1 | — | 1453 |
| Morningstar Emerging Markets Low Carbon Transition Leaders | 200.6 | 40.6 | 528 |
| Morningstar Emerging Markets Large-Mid Target Market Exposure | 337.6 | — | 1574 |

Source: Morningstar Indexes. Data as of December 18, 2023

Investment outcomes can be analyzed from the perspectives of both holdings and returns. As displayed in exhibit 8, sector weights for the Low Carbon Transition Leaders Indexes do not deviate dramatically from those of the broad equity market segments from which they are derived. The energy sector is a slight overweighting for the Low Carbon Transition Leaders Indexes in the case of both developed and emerging markets. Meanwhile, technology is an underweight exposure. These biases are unusual for portfolios screened on environmental criteria given the emissions profiles of both sectors.

### Exhibit 8: Portfolio-level sector weightings

#### Developed markets

| Sector | DM Low Carbon Transition Leaders (%) | DM Large-Mid Target Market Exposure (%) |
|---|---|---|
| Basic materials | 4.20 | 3.80 |
| Communication services | 7.80 | 7.00 |
| Consumer cyclical | 10.60 | 10.90 |
| Consumer defensive | 6.60 | 6.90 |
| Energy | 4.90 | 4.50 |
| Financial services | 16.80 | 15.00 |
| Healthcare | 13.00 | 12.20 |
| Industrials | 12.10 | 10.70 |
| Real estate | 2.50 | 2.50 |
| Technology | 18.70 | 24.00 |
| Utilities | 2.90 | 2.60 |

#### Emerging markets

| Sector | EM Low Carbon Transition Leaders (%) | EM Large-Mid Target Market Exposure (%) |
|---|---|---|
| Basic materials | 8.06 | 8.20 |
| Communication services | 9.20 | 8.60 |
| Consumer cyclical | 10.80 | 12.00 |
| Consumer defensive | 5.60 | 5.70 |
| Energy | 5.60 | 5.80 |
| Financial services | 25.30 | 22.40 |
| Healthcare | 3.70 | 3.60 |
| Industrials | 8.60 | 8.00 |
| Real estate | 1.40 | 1.50 |
| Technology | 17.50 | 21.10 |
| Utilities | 3.50 | 3.10 |

Source: Morningstar Indexes. Data as of December 18, 2023

What about risk and return? Exhibit 9 shows that the Morningstar Developed Markets Low Carbon Transition Leaders Index outperformed the broad equity market portfolio from which it is derived with slightly higher volatility, based on backcast returns to 2020. The Morningstar Emerging Markets Low Carbon Transition Leaders Index slightly underperformed with marginally higher volatility over the same period. Tracking error, or deviation from market behavior, is meaningful but far from dramatic.

**Exhibit 9: Performance summary**

| | Morningstar DM Low Carbon Transition Leaders | Morningstar DM Target Market Exposure | Morningstar EM Low Carbon Transition Leaders | Morningstar EM Target Market Exposure |
|---|---|---|---|---|
| Return (%) | 14.78 | 13.02 | 3.00 | 3.20 |
| Risk (%) | 18.17 | 17.50 | 17.70 | 17.40 |
| Tracking error | 2.22 | — | 2.90 | — |

Source: Morningstar Indexes. Period Analyzed: June 19, 2020-January 31, 2024. Data are annualized.

# Investing toward a climate transition

The risk/reward profile of the Morningstar Low Carbon Transition Leaders Indexes demonstrates that investments aligned with a low-carbon economy need not deliver inferior performance. In fact, as the world moves away from fossil fuel dependence, companies prepared for or promoting the transition may be well positioned to prosper.

Climate risk is increasingly accepted as financial risk. The goals of lowering carbon intensity and delivering a successful investment experience will therefore converge. Investors today need to look beyond corporate net zero pledges, distinguishing businesses taking measurable steps to reduce GHG emissions and adapting their business models to combat climate change from those that merely pay lip service to climate risk. Leveraging Morningstar Sustainalytics research, the Morningstar Low Carbon Transition Leaders Indexes provide exposure to companies that lead their industry peers in managing climate risk in the transition to a low-carbon economy.

# About Morningstar Indexes

Morningstar Indexes was built to keep up with the evolving needs of investors—and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers and advisors in navigating investment opportunities across major asset classes, styles and strategies. From traditional benchmarks and unique IP-driven indexes, to index design, calculation and distribution services, our solutions span an investment landscape as diverse as investors themselves.

For more information, visit indexes.morningstar.com, or contact us at indexes@morningstar.com