BlackRock®

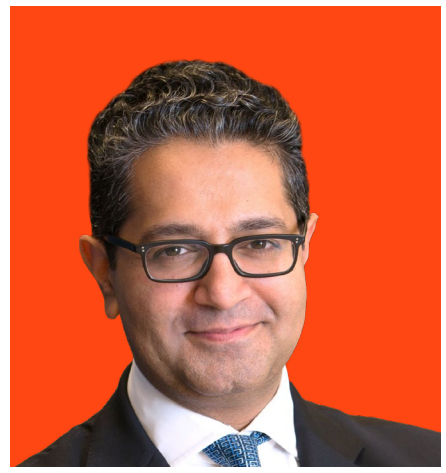
# A sea change in global investing

Integrating climate into portfolios with ETFs

# Contents

# Foreword

**Philipp Hildebrand**
Vice Chairman



**Salim Ramji**
Global Head of iShares and Index Investments

**Today, the questions we get most often are around how to navigate the low-carbon transition and incorporate climate risks into portfolios.**

**The idea that climate risk represents investment risk has moved from a novelty in the investment world to something approaching mainstream thinking in just a few years.**

This shift has recently accelerated as a result of four powerful reinforcing moves: first, record damages from extreme weather events in 2020 have underscored the importance of pricing in physical risk; second, regulation globally has shifted decisively toward a net zero economy; third, clean energy innovations are reducing the cost and carbon intensity of energy production; and finally, investor sentiment appears to be turning in favor of sustainable strategies.[1]

While the momentum behind sustainability is remarkable, it is still the beginning of a long journey. An estimated USD50 to USD100 trillion in capital investment is required to rebuild a "net zero" global economy — one that emits no more greenhouse gas than it removes from the atmosphere by 2050.[2] To put this in perspective, achieving such an objective will take the equivalent of at least 10 Marshall Plans per year for three decades.[3]

The time frame, scale, and complexity of this challenge can seem daunting even to experienced professional investors. Many investors have an intuitive sense that climate risks are investment risks — and our clients say they expect to double their allocations to sustainable investments over the next five years.[4] Today, the questions we get most often are around how to navigate the low-carbon transition and incorporate climate risks into portfolios.

New climate-oriented tools are now available to investors to help with the economic transition, and one widely available means for clients to effect change right now is through exchange traded funds (ETFs). Today, there are nearly 600 sustainable ETFs available globally (up from 30 a decade ago), a growing number of which enable investors to customize portfolios around climate needs — from reducing carbon exposure, to prioritizing a low-carbon transition, to targeting themes such as clean energy.[5] Many of these ETFs can serve as foundational building blocks for people seeking out affordability, transparency, and convenience when investing for the low-carbon transition.

We believe that financial markets are only beginning to appreciate the potential impact of the shift toward sustainability on asset prices. The convenience that ETFs provide can further catalyze a synchronized move toward sustainability that we believe over time will help make the most sustainable assets more valuable and the least sustainable assets less valuable.[6] BlackRock thinks such a tectonic shift will reward first-mover investors and give companies meaningful incentives to accelerate their transition to a low-carbon economy.

# Introduction

We believe that investors who don't consider the effects of climate change on the global economy and asset prices aren't seeing the whole picture. Emerging research suggests that companies that are most well adapted to a low-carbon economy are better positioned than peers to grow earnings, and that greenhouse gas efficiency has links to financial performance.[7]

BlackRock believes climate risk is investment risk, and market participants increasingly share this view. References to sustainability, including climate, on the quarterly earnings calls of the largest U.S. companies have tripled over the past decade, and investors plan to double their sustainable assets under management, from 18% to 37%, within the next five years.[8]

**In 2020 alone, natural disasters led to an estimated**

**USD 210B**

**in damages, the highest ever recorded and up from the inflation-adjusted average of the last ten years of approximately USD 185B**

Source: Munich Re NatCatService database (as of March 30, 2021).

Reshaping the global economy to meet the climate threat will have major financial ramifications — and not just far in the future. Investors may begin to see the effects of climate in the years ahead, and valuation trends could be magnified over the coming decades by growing investor demand for sustainable assets.[9]

We believe that the biggest potential benefits will accrue to the global investors who are quickest to ready their portfolios for the new era of climate investing.

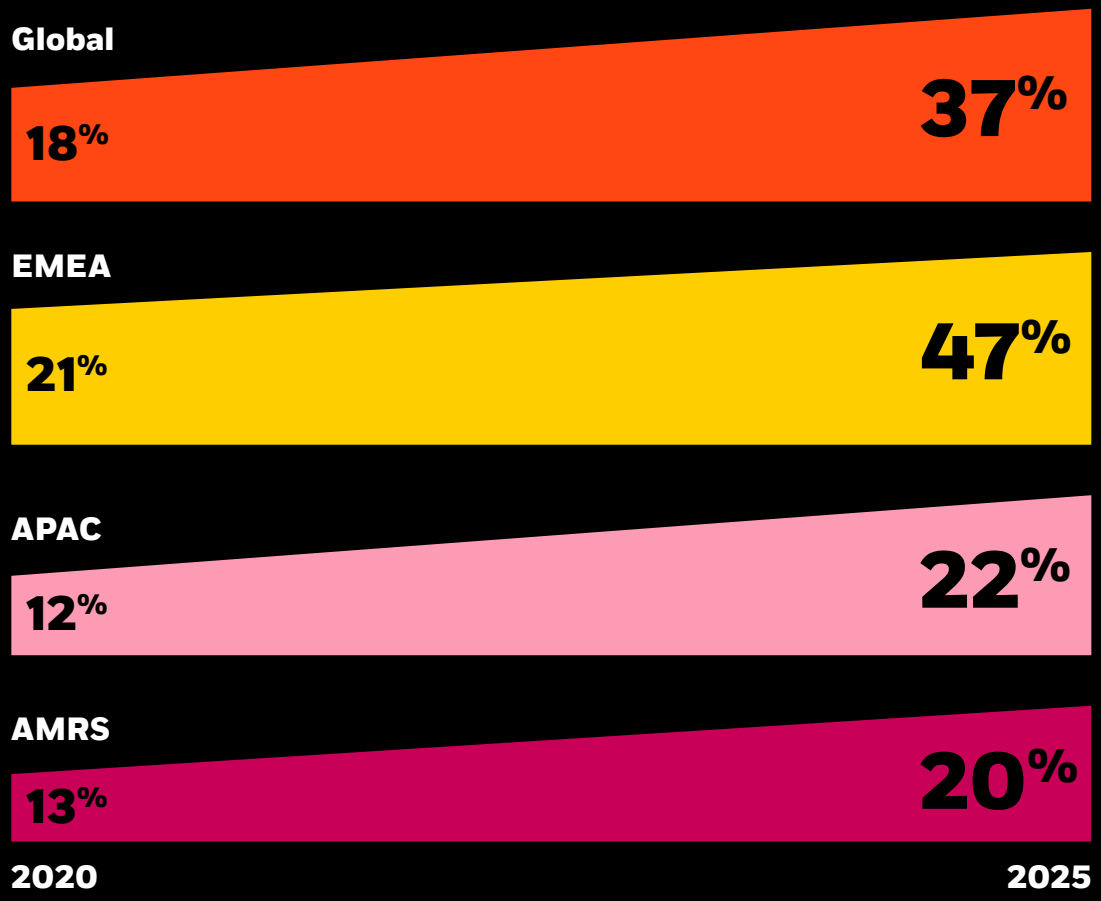
**Climate risk includes:**

**Physical risk** — Increased risk to companies' assets and activities caused by the direct impact of changing weather patterns and natural catastrophes.

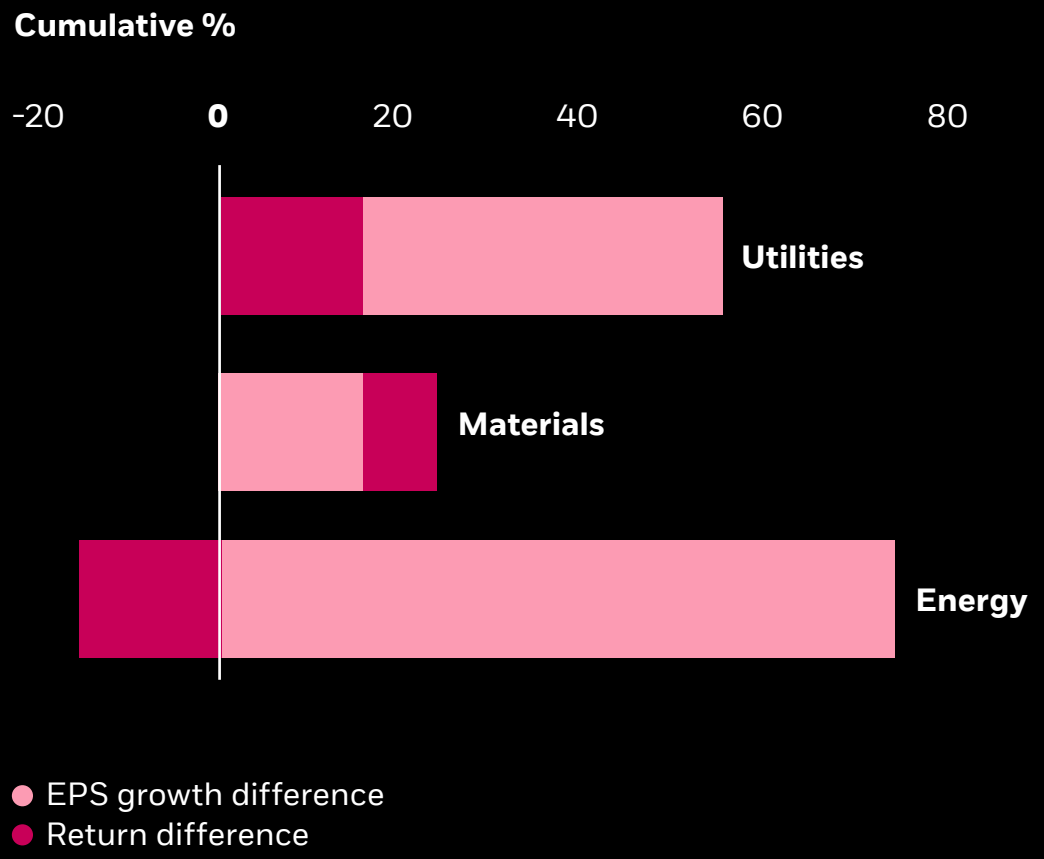
**Transition risk** — Impact of the transition to a low-carbon economy on a company's long-term profitability.

Source (data chart): BlackRock Global Client Sustainable Investing Survey. July – September 2020. Respondents included 425 investors in 27 countries representing an estimated USD25 trillion in assets under management. Sustainable investments are defined as portfolios which have a distinct ESG objective (such as thematic or impact), apply exclusionary screens, or optimize towards ESG. It does not include ESG-integrated portfolios, company engagement or proxy voting. There is no guarantee that any forecasts made will come to pass; https://www.blackrock.com/corporate/literature/publication/blackrock-sustainability-survey.pdf

## What percentage of your assets are invested sustainably in 2020? And what is your estimate for the percentage of assets under management that will be invested sustainably by 2025?



# Financial performance differences between the most and least low-carbon-ready companies (%)

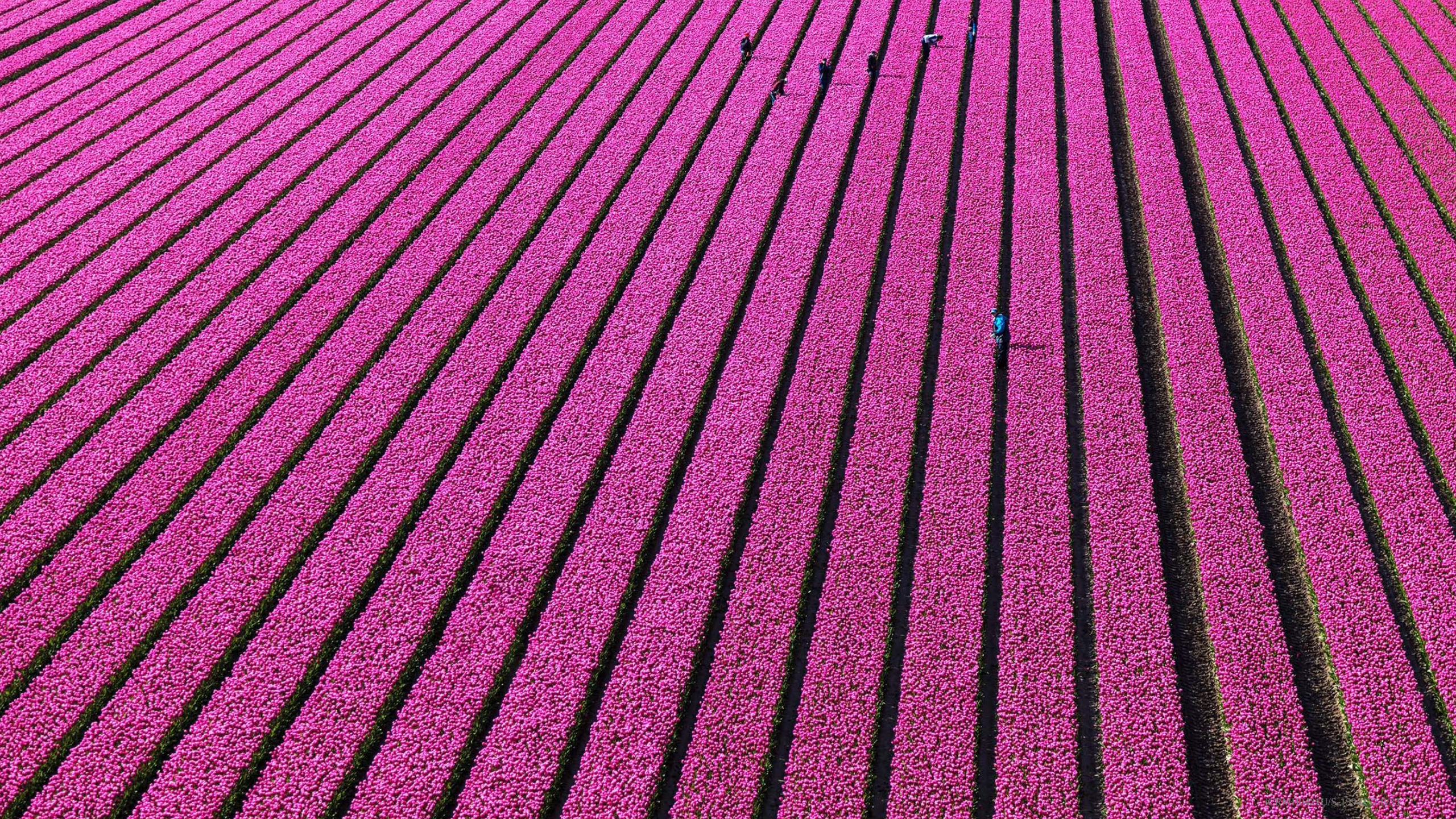



Data providers and index firms are increasingly using climate information to search for linkages between low-carbon economy readiness and financial performance metrics such as earnings per share (EPS). This chart depicts the difference in EPS and equity performance between MSCI ACWI IMI companies with the highest (top quintile) Low Carbon Transition Scores and the lowest (bottom quintile) Low Carbon Transition Scores in sectors that are most exposed in terms of higher-risk LCT categories (utilities, materials, energy), according to MSCI.

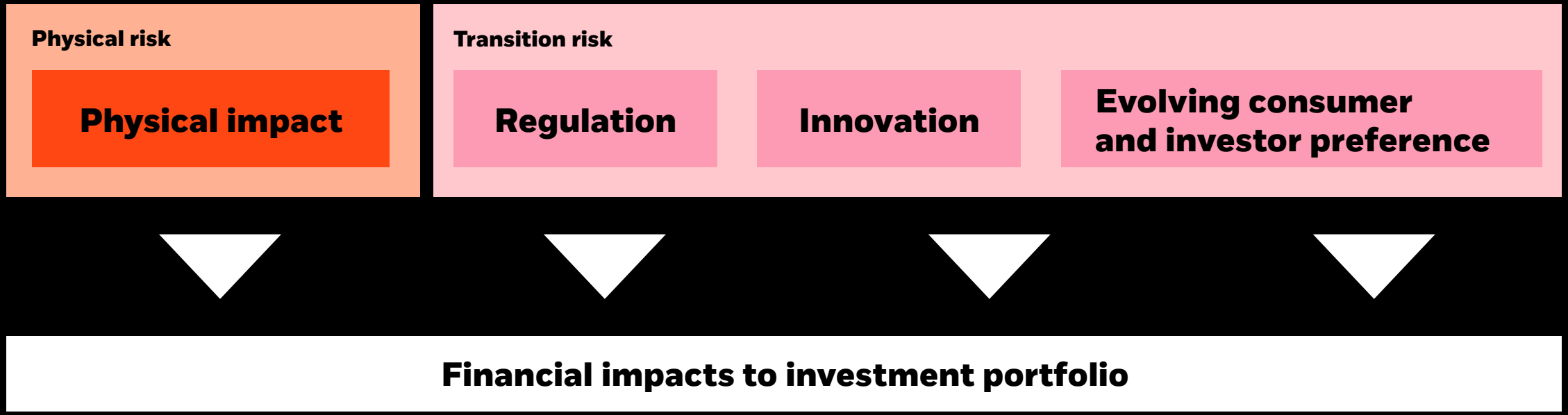
MSCI (data relates to the MSCI ACWI IMI from Oct. 31, 2013, to June 30, 2020). MSCI Low Carbon Transition (LCT) Scores as a comprehensive measure for transition risk (start date for LCT data collection was October 2013). The score aggregates companies' risks due to direct emissions (Scope 1, Scope 2), risks due to their upstream supply chain (Scope 3 upstream emissions) and risks inherent in their products and services (Scope 3 downstream emissions). The LCT Scores take into account companies' "green opportunity exposure" by measuring avoided emissions, low-carbon patent scores, and in Scope 3 emissions and companies' climate transition risk management. *Index performance is for illustrative purposes only. Index performance does not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index. The figures shown relate to past performance. Past performance is not a reliable indicator of current or future results.*

# 01

# Four ways climate will impact investors around the world



# Investors over the coming decades will experience the impact of climate on asset prices in four ways:




1

# Physical risk

## Pricing in the threat of catastrophe

How climate change alters the planet's physical environment is of crucial importance to companies and investors everywhere. In the decades to come, investors are expected to grapple with the implications of rising sea levels and more frequent and severe weather events including hurricanes, flooding, drought, heat, and wildfires. More than half of the world's total GDP has a direct or indirect dependency on nature — all asset classes around the world could be impacted by the physical effects of climate change.[10]

There was a record USD210 billion worldwide in assessed damages from natural disasters in 2020, and, in the U.S. alone, 22 separate weather or climate disasters resulted in losses exceeding USD1 billion.[11] Climate-related physical risks threaten economies of U.S. state and local debt issuers, commercial real estate, and the equities of U.S. electrical utilities.[12] The first-ever climate-related bankruptcy tied to wildfires in California raised the borrowing costs for industry peers, and at least three Texas energy suppliers filed for bankruptcy after a 2021 snap freeze.[13] By one estimate, some 11% of rated bonds globally — amounting to USD8.7 trillion — may be at immediate or elevated risk of a downgrade in response to heightened climate risk.[14] All told, climate change could lift interest payments on sovereign and corporate debt by nearly USD270 billion per year by the end of the century.[15]

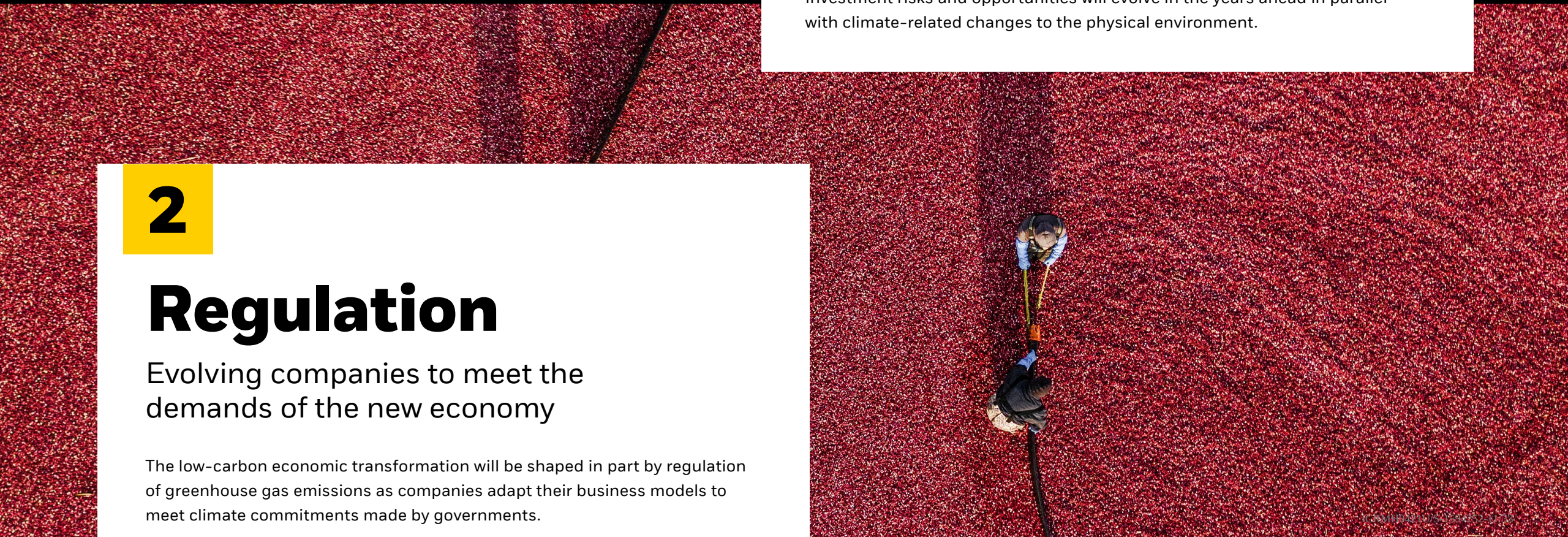
# 11%

**of bonds globally may be at immediate or elevated risk of a downgrade in response to heightened climate risk.**

It has been historically difficult to quantify the physical effects of climate change on investor portfolios, though advances in climate and data science now enable investors to better model how steadily rising temperatures affect the frequency and severity of natural catastrophes, as well as potential investment exposure and vulnerability to such hazards.[16]

The transition to a low-carbon economy will bring investment opportunities as demand for solutions to mitigate physical climate risk fosters new business models – infrastructure, agriculture, energy sectors will need to be transformed. Public transportation systems, airports, and roads in flood zones will need to be shored up and rebuilt; technological investments in agriculture are underway to cope with hotter, drier weather.

Investment risks and opportunities will evolve in the years ahead in parallel with climate-related changes to the physical environment.



2

# Regulation

## Evolving companies to meet the demands of the new economy

The low-carbon economic transformation will be shaped in part by regulation of greenhouse gas emissions as companies adapt their business models to meet climate commitments made by governments.

In 2020, the European Union, China, Japan, and South Korea all committed to building economies that emit no more greenhouse gas than they remove by the second half of this century. The U.S. rejoined the Paris Agreement on climate change in early 2021, bringing to 127 the number of governments that are either considering or already implementing commitments to carbon-neutral economies.[17] Many governments are experimenting with penalties and incentives such as carbon taxes and tax credits, and more than 2,100 laws related to climate change have been introduced worldwide.[18]

This tidal wave of regulation will have a significant economic impact on valuations in all asset classes. For example, some USD900 billion, or fully one-third of the current value of the largest oil and gas companies, could be written off corporate balance sheets if governments aggressively pursue restrictions to check rising temperatures.[19] Such "stranded" fossil fuel reserves are factoring into calculations about future profitability and borrowing costs for major oil and gas companies and oil-exporting countries.[20] Anticipation for future regulation will increasingly affect how companies account for, and make business decisions related to, managing carbon emissions.[21]

Companies even in most energy-intensive industries are responding by unveiling plans to become "net zero" businesses. Already in 2021: a major oil company affirmed that its oil production has peaked; a major automaker announced it will sell only electric cars within a decade; a global steelmaker said it will boost research and development to help accelerate decarbonization.[22] We expect that companies will continue to adapt their business models to align with policy commitments.

**127**

**governments are either considering or already implementing commitments to carbon-neutral economies.**

3

# Innovation

## Emerging technologies and industries to fuel the low-carbon transition

We believe growth-seeking investors could find once-in-a-generation opportunities in the technologies that will be required to transform the economy. Stricter climate policies and growing consumer preferences will spark breakthroughs in industries including renewable energy, which will have knock-on effects that enable scaled production and widespread adoption. A new crop of clean-energy companies is increasingly finding its way to public equity markets.[23]

Fossil fuels currently provide about 84% of the world's energy, but major producers say that oil production likely peaked in 2019, and the race is on in particular for cheap, clean ways to produce electricity.[24] Renewables are set to pass coal as the biggest source of power generation by 2025.[25]

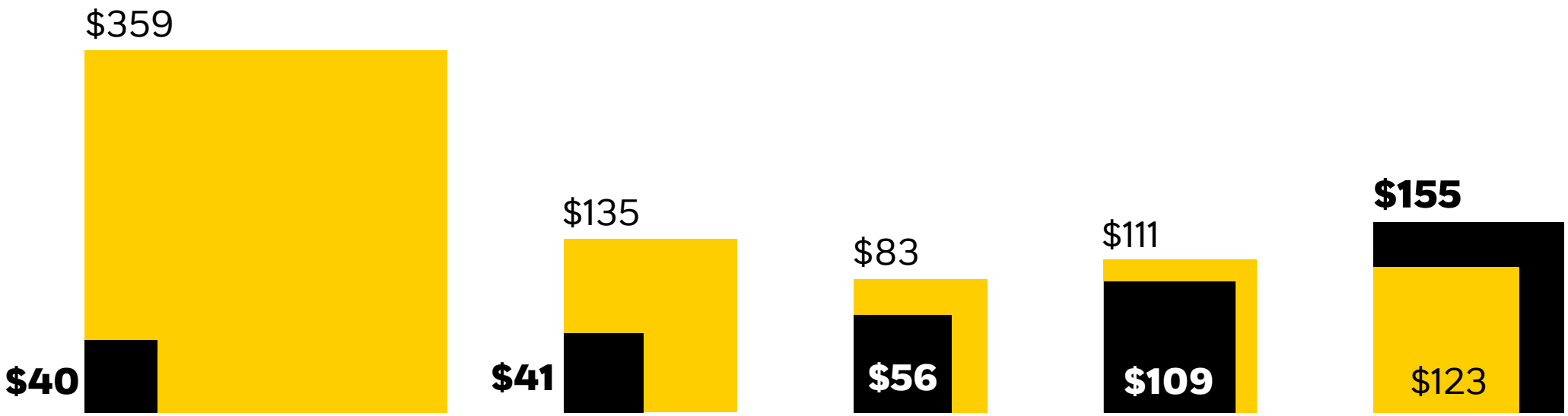
Innovation is helping to deliver cheaper renewable energy sources and enabling new advances. For example, about 17,000 electric cars were on the world's roads in 2010, but by 2019 this number had expanded to 7.2 million.[26]

Widespread adoption of electric trucks has long been cost-prohibitive, but battery and infrastructural improvements could soon reduce the total cost of electric truck ownership so that it's on par with diesel.[27] Production costs of solar photovoltaic technology fell 89% between 2009 and 2019, making the installation of solar panels economically accessible; indeed, solar projects now offer some of the lowest-cost electricity in history.[28]

Innovation is also helping investors discern where there is potential for differentiated earnings growth in established industries. Index company MSCI, for example, uses clean energy patents as a proxy for potential future earnings growth within sectors. Their research suggests that within the most carbon emission-intensive industries — utilities, materials, energy — companies with the most patents around green energy also have tended to have the highest earnings growth.[29]

## The price of electricity from new power plants

(USD/megawatt-hour) ● 2009 ● **2019**




Source: Our World in Data (Dec. 1, 2020); Lazard Levelized Cost of Energy Analysis, Version 13 (Nov. 7, 2019). "Combined cycle" gas power plants run for much longer periods than "peaker" plants and therefore provide cheaper electricity.

**4**

# Preferences

Consumer choice and investor demand for sustainability

## Number of companies disclosing on climate change

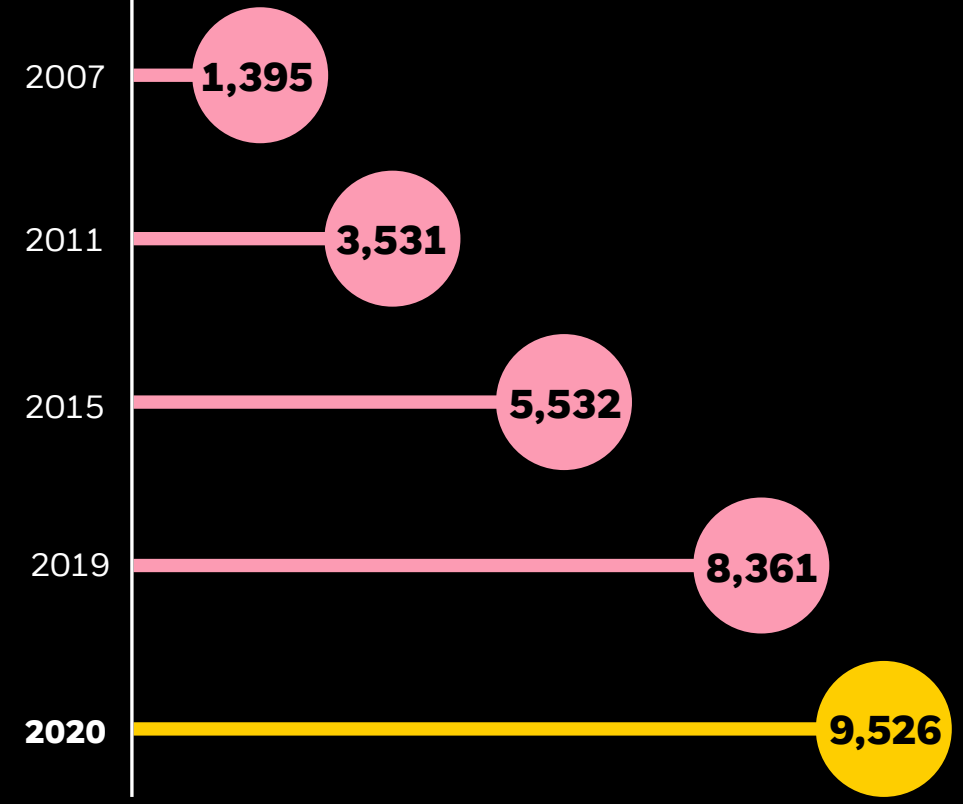
2003 **228**

A steady stream of ecological shocks linked to climate change — infernos in Australia and California, historical heat waves across Europe, relentless flooding in South Asia — are shifting society's attitudes about sustainability and the imperative of the climate threat, particularly among young people for whom the danger appears most stark.[30] Almost two-thirds of over 1.2 million people recently surveyed say that climate change is a global emergency.[31]

In parallel with growing recognition of the climate threat, consumers and investors increasingly demand that companies and brands do their part to minimize their environmental impact. BlackRock believes that companies that do not respond will face potential reputational damage.

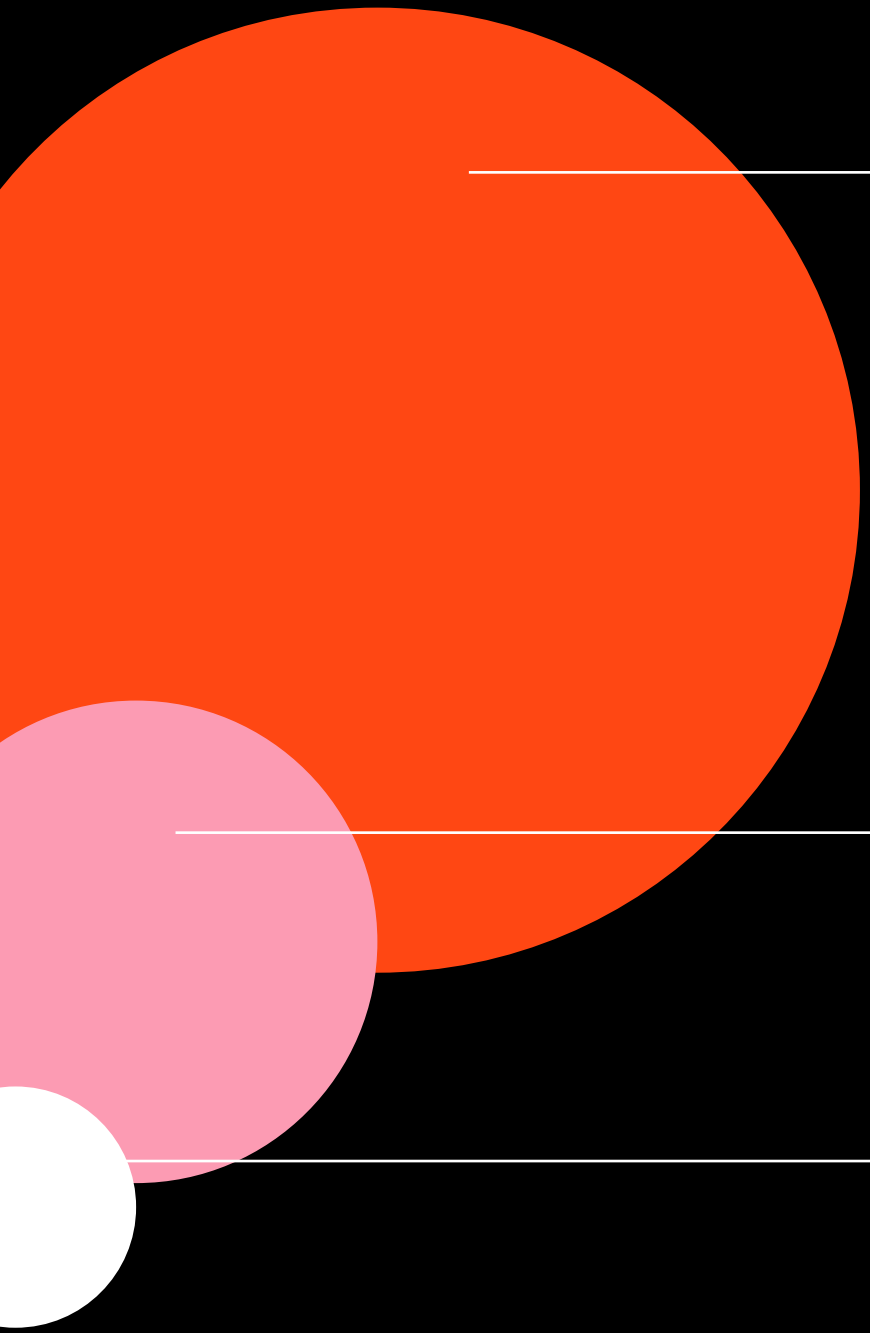
Already, companies are moving quickly to match commitments from competitors. For example, General Motors in January 2021 pledged to stop producing gas-powered vehicles by 2035; Volvo Cars in March pledged to be fully electric by 2030.[32] Within the energy sector, BP has pledged to cut its greenhouse gas emissions to net zero by 2050 or sooner, following emissions-cutting initiatives announced by Royal Dutch Shell, Total, and others.[33] In time, we believe that companies that are successful in developing climate-oriented solutions and implementing such practices into supply chains may be poised to capture additional market share.

**Companies mentioned are shown for illustrative purposes only and are not meant to be investment advice or an investment recommendation to buy or sell any particular security.**




Source: CDP Worldwide (as of January 2021).

# Sustainable ETFs with climate considerations tend to be more affordable than comparable mutual funds in the U.S.



All equity mutual funds with climate considerations
**117bps**

All equity ETFs with climate considerations
**46bps**

Comparable iShares equity ETFs
**17bps**

## Why ETFs and index investing are bringing transparency and accessibility to an emerging segment

ETFs have expanded the availability of sustainable investment options for investors and every portfolio. ETFs have expanded the availability of sustainable investment options for investors and every portfolio. There are now nearly 600 sustainable ETFs globally, up from around 30 a decade ago, and a growing number of which have climate-oriented considerations.[34] The increasing number of sustainable ETFs, including climate-oriented ETFs, will offer new and convenient ways for all investors to access innovative strategies at a key moment in the transition to a low-carbon economy.

ETFs offer affordable access to sustainable investments. For example, in the U.S., BlackRock found that the average sustainable equity mutual fund with climate components in their investment strategies has an average net expense ratio of 1.17 percentage points per year: That's more than double the 0.46 percentage point for comparable ETFs, and significantly higher than 0.17 percentage point for comparable iShares ETFs.[35]

Investors have demonstrated emphatic demand for the benefits inherent to sustainable ETFs, including those that focus on climate. For example, globally, sustainable ETFs took in a record USD87.9 billion in 2020 – triple the amount in the prior year.[36]

For illustrative purposes only. Bps= basis points. A basis point is one hundredth of one percent. Subject to change. All chart data refers to U.S.-domiciled equity funds and net expense ratios are calculated as a simple average, based on prospectus reports. Data in the chart encompasses 16 mutual funds and 43 ETFs. Sources: BlackRock analysis of Morningstar data as of March 15, 2021. BlackRock filtered the Morningstar universe of U.S.-domiciled Sustainable Investment funds to include six relevant sub-categories (Environmental, Environmental Sector, General Environmental, Low Carbon/Fossil-Fuel, Water-Focused, Renewable Energy). Mutual fund data calculated based on primary share class.

# 02

# Incorporating climate risks and opportunities into every portfolio

# BlackRock sees three approaches to climate investing

While more investors accept that climate risk is investment risk and should be incorporated into portfolios, executing this thesis has never been simple. Until recently, divestment was the predominant way to express climate-oriented objectives. Recent advancements in data and analytical tools have enabled more sophisticated methods for building portfolios with an emphasis on climate. These products can be incorporated in portfolios alongside traditional investments or as replacements for them.

| Broad building blocks | | Targeted exposures |
|---|---|---|
| **Reduce exposure to carbon emissions or fossil fuels** | **Prioritize investments based on climate opportunities and risks** | **Target climate themes and impact outcomes** |

For illustrative purposes only. The above list is not exhaustive but represents various ways investors can take specific climate objectives into consideration.

1

# Reduce

## exposure to carbon emissions and fossil fuels

Fossil fuel and carbon emission reduction strategies seek to exclude or diminish the presence of securities affiliated with fossil fuel production from portfolios.

These strategies initially focused on simple divestment from specific sectors or industries. Increasingly, reduction approaches consider metrics related to carbon emissions output relative to sector peers, as well as the level of revenues derived from activities with adverse effects on climate.

2

# Prioritize

## companies based on climate opportunities and risks

Advances in data and disclosure about climate-related business activities allow investors to pursue strategies designed to increase exposure to securities that may be better positioned for the transition to a low-carbon economy, and to decrease exposure to securities that may be poorly positioned.

3

# Target

## thematic and impact investments

Targeted investing focuses on specific themes that represent opportunities in the transition economy.

## Better data and disclosure is accelerating climate-oriented investing and indexing

A key driver of climate-oriented investing is more readily available and interpretable data on climate-oriented risks and opportunities.

The lack of useful and comparable data points has always been a hurdle to climate-oriented investing. Early climate-oriented investment research was sparse and loosely captured how physical and transition risks affect companies and asset classes. Today, the quality of climate data remains highest in developed economies and gaps remain in emerging economies.

Growing consensus around common standards for measuring climate exposures coupled with investor demand and global public policy efforts have encouraged more firms to report — even when a firm's results might not be favorable. Since 2013, the number of companies that disclose climate-related metrics has more than doubled – to more than 9,500.[37] Big data science allows investors to review not only disclosed standardized data and third-party research, but also unstructured data which gives rise to return-generating insights.

There is also greater breadth in what companies now report, allowing data providers to tackle some of the thorniest issues in climate finance. Such issues include measuring "Scope 3" emissions: the full-value-chain impact of a company's activities. Critically, more comprehensive climate-data is helping to support the growth of climate-oriented indexes, which are not directly investable but allow investors to measure and invest with greater transparency in products that seek to track indexes.

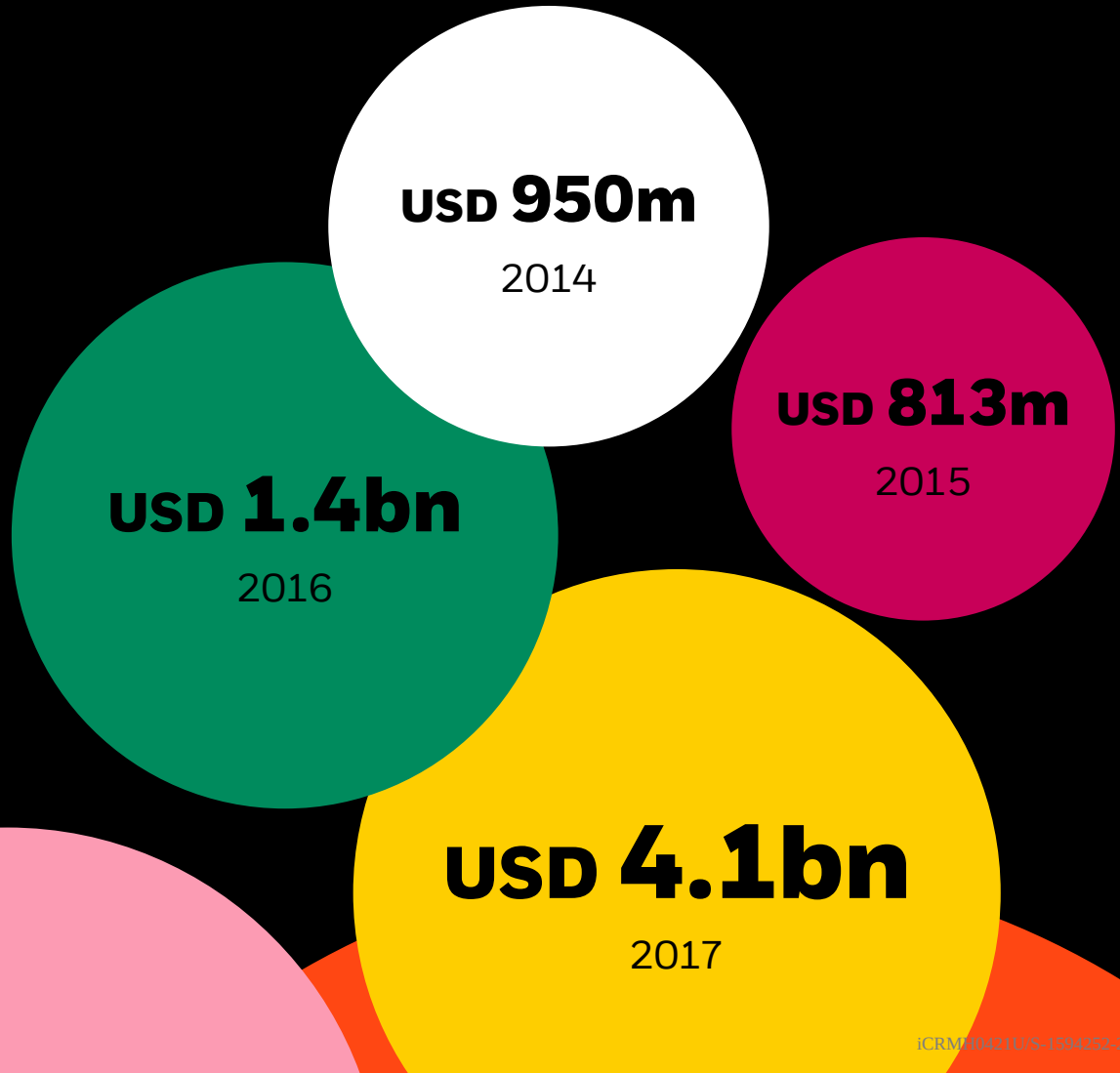
The evolution of climate data and metrics continues to accelerate. BlackRock expects that the range of security and portfolio metrics will look very different in a few years, similarly to how data around environmental, social, and governance (ESG) characteristics have evolved.

Investors with higher convictions and a higher tolerance for risks and returns that deviate from broad benchmarks may want to consider thematic and impact investments.

**CalSTRS recognizes that the on-going transition towards a low-carbon economy will transform financial markets and radically shift the investment landscape. To be successful through this transition we must understand how markets are changing and position our portfolio accordingly.**

—Kirsty Jenkinson, Investment Director of Sustainable Investment and Stewardship Strategies, California State Teachers' Retirement System

# Annual inflows into global sustainable ETFs



**USD 6.8bn**

2018

**USD 29.3bn**

2019

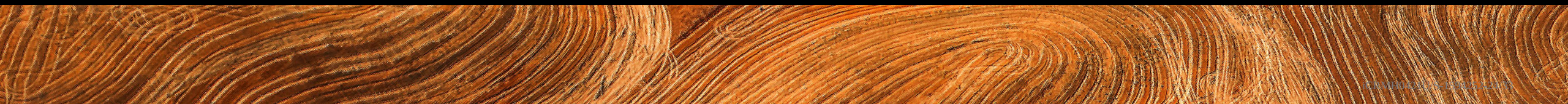
**USD 87.8bn**

2020

Source: BlackRock analysis of Morningstar global data; (as of Dec. 31, 2020).

# 03

# Integrating climate into portfolios with ETFs



**Climate-oriented investing used to be difficult to access except for the most sophisticated investors, but ETF innovation makes it possible for many types of investors to weave such exposures into portfolios.**

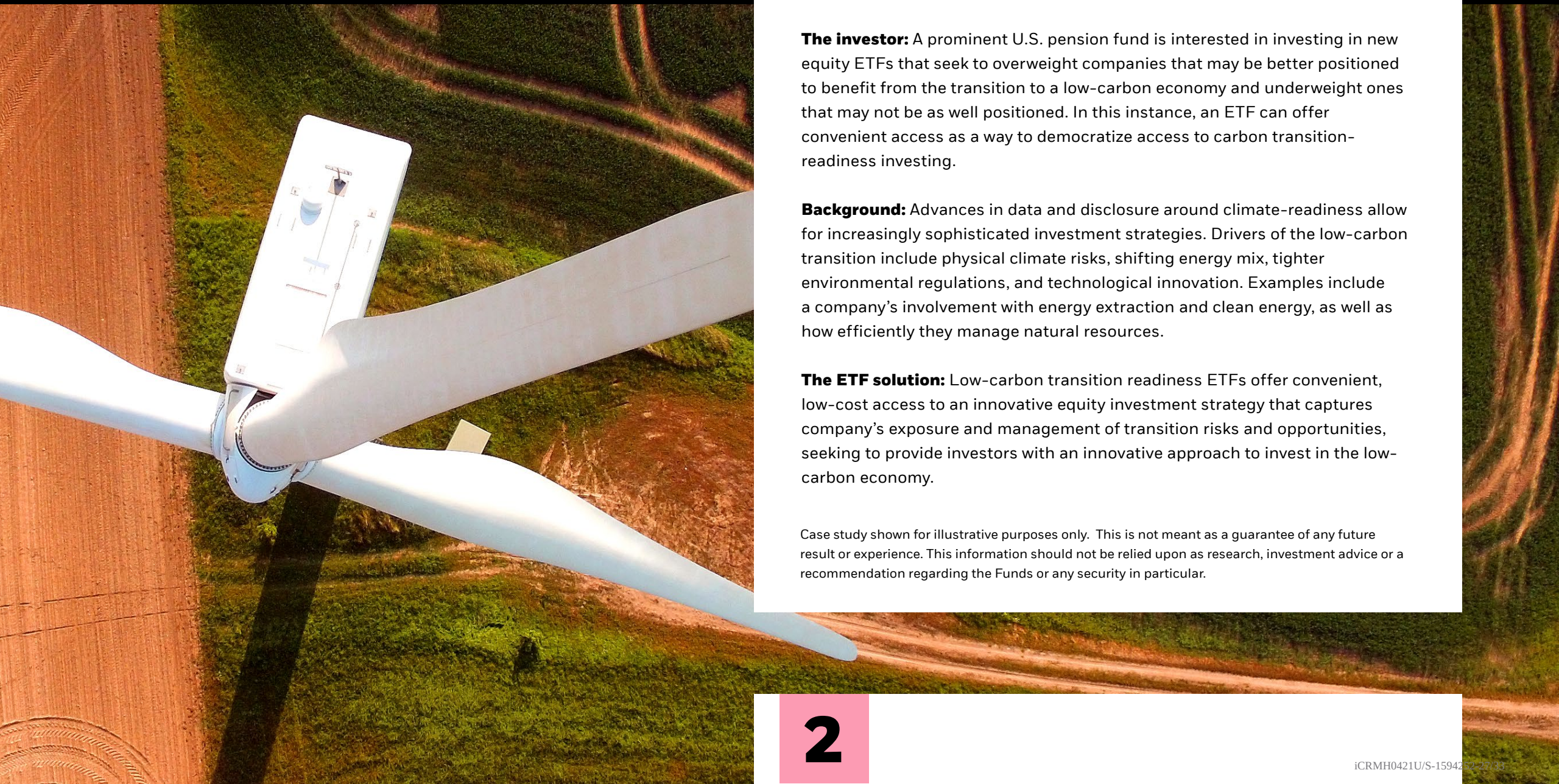
A broad spectrum of investors, from asset owners to wealth managers, are turning to climate-oriented ETFs for a liquid, transparent, and efficient way to help build portfolios for the transition to a low-carbon economy.

BlackRock believes that climate risk gives rise to investment risk and opportunity, and where possible, has integrated sustainability into its investment process. BlackRock is making available a range of ETFs that help clients meet their sustainable investing goals and working with institutional clients to invest in renewable infrastructure around the world.

What follows are examples that highlight why and how professional investors are using ETFs at the core of their portfolios as foundational, long-term exposures.

**Better data and analytics have catalyzed climate investing. We are at a pivotal moment in the history of investing and we believe it is now essential to incorporate climate risks and opportunities into asset allocations and portfolio management.**

—Timo Sallinen, Head of Listed Securities, Varma Mutual Pension Insurance Company



# Equity opportunities in low-carbon transition readiness

**The investor:** A prominent U.S. pension fund is interested in investing in new equity ETFs that seek to overweight companies that may be better positioned to benefit from the transition to a low-carbon economy and underweight ones that may not be as well positioned. In this instance, an ETF can offer convenient access as a way to democratize access to carbon transition-readiness investing.

**Background:** Advances in data and disclosure around climate-readiness allow for increasingly sophisticated investment strategies. Drivers of the low-carbon transition include physical climate risks, shifting energy mix, tighter environmental regulations, and technological innovation. Examples include a company's involvement with energy extraction and clean energy, as well as how efficiently they manage natural resources.

**The ETF solution:** Low-carbon transition readiness ETFs offer convenient, low-cost access to an innovative equity investment strategy that captures company's exposure and management of transition risks and opportunities, seeking to provide investors with an innovative approach to invest in the low-carbon economy.

Case study shown for illustrative purposes only. This is not meant as a guarantee of any future result or experience. This information should not be relied upon as research, investment advice or a recommendation regarding the Funds or any security in particular.

**The risks and opportunities posed by the coming transition to low-carbon economies will be unlike anything else in our lifetimes. We see readying portfolios for the new economy as essential to delivering for our clients and contributing to a better future for all.**

—Juan Camilo Osorio, Chief of Investment Officer, Head of the Pension Business, Sura Asset Management

# Exclusionary screens and ESG ratings in model portfolios

**The investor:** A sophisticated builder of model portfolios was looking at ways to capture opportunities from developed-market equities with reduced exposure to fossil fuels and higher ESG ratings. The investor believes that such stocks will have the potential to outperform conventional equities in the long term.

**Background:** Evidence that ESG criteria and exposure to fossil fuel-related activities influence portfolio outcomes is helping to displace conventional notions that sustainable investing means sacrificing returns.[38] Because many sustainable index strategies are built from the industry's most popular benchmarks, investors can incorporate sustainable characteristics without fundamentally changing their asset allocation strategies. ETFs may be included into model portfolios for potentially better risk and return characteristics as well as sustainability and climate goals.

**The ETF solution:** Sustainable ETFs that combine fossil fuels-related screens and ESG ratings can serve investors as convenient equity building blocks. A developed-market equity ETF as part of a strategic allocation helped the model builder prioritize higher-rated ESG companies while extensively screening out controversial activities, including fossil fuel-related ones. Additionally, the ETF helped to reduce carbon emission intensity for the exposure.

Case study shown for illustrative purposes only. This is not meant as a guarantee of any future result or experience. This information should not be relied upon as research, investment advice or a recommendation regarding the Funds or any security in particular.

**Our purpose is to obtain the highest possible pensions for our clients, but we also are committed to the conservation of the environment and the fight against the effects of climate change, so that we can all live in a more sustainable world. We firmly believe that these vehicles will help us achieve our goals.**

—Juan Pablo Noziglia, Chief Investment Officer, Profuturo AFP

**At FM Global, we're committed to advancing global resilience to climate change and natural catastrophe risks. We are also committed to investing in strategies and companies focused on energy transition, reducing the carbon footprint, dedicating capital and talent towards developing breakthrough solutions that advance climate resilience. We believe such investments will generate positively differentiated returns, strengthening our long-term stability and profitability. As a commercial property insurer, this strategy aligns well with our efforts to put our capital to work to help increase the resilience of our clients and collective communities.**

—Sanjay Chawla, Senior Vice President and
Chief Investment Officer, FM Global

# BlackRock is committed to supporting the goal of net zero greenhouse gas emissions by 2050 or sooner.

To help reach these goals, we're offering our clients a full set of climate-oriented investment capabilities. In 2021, BlackRock committed to creating solutions with explicit temperature-alignment goals to allow clients to pursue their net zero objectives, as well as products that will help navigate the transition to a net zero economy.

We promote transparency and measurement and have committed to publishing a temperature alignment metric for our public equity and bond funds for any markets with sufficiently reliable data. Additionally, we're helping more investors manage and meet their climate objectives by tracking investment portfolios' trajectories toward net zero, and helping to catalyze increasingly robust and standardized climate data and metrics to better serve the industry.

And we're only getting started. The questions for investors are not whether climate change will have material financial implications, but when and where.

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# Key terms

## Emissions reporting

GHG Protocol defines accounting standards for companies to report emissions. Emissions are categorized by scope based on how directly attributable they are to the company's activities:
**Scope 1** – Direct emissions from sources owned or controlled by the company (e.g., boilers to heat buildings, fuel for company vehicles).
**Scope 2** – Indirect GHG emissions from purchased electricity or steam consumed by the company.
**Scope 3** – Indirect emissions not owned or controlled by the company (e.g., business travel, supply chain, use of products sold to customers, investments).

## ESG integration

Incorporating financially material environmental, social, and/or governance information into investment research and decision-making, based on the conviction that sustainability-integrated portfolios can provide better risk-adjusted returns to investors.

## Greenhouse gas emissions

Gases that trap heat in the atmosphere, such as carbon dioxide, methane, and nitrous oxide. Emissions result from a variety of human activities (e.g., energy generation, transportation, industrial processes).

## Net zero

A global net zero commitment establishes an aggregate timeline for achieving the well below 2°C target called for in the Paris Agreement. Many country and corporate net zero commitments target 2050, consistent with global targets to avoid catastrophic outcomes from climate change.

## Paris Agreement

International agreement to keep the increase in global average temperature to well below 2°C above preindustrial levels while endeavoring to limit warming to 1.5°C, the scientifically backed threshold to prevent the most destructive effects of climate change. Each country must determine, plan, and regularly report on the contribution that it undertakes to mitigate global warming.

## Physical Risk

Increased risk to companies' assets and activities caused by the direct impact of changing weather patterns and natural catastrophes.

## TCFD

The Financial Stability Board Task Force on Climate-related Financial Disclosures provides a set of recommendations for voluntary and consistent climate-related financial risk disclosures in mainstream filings.

BlackRock was an early participant on the TCFD and we continue to promote adoption of the framework.

## Transition Risk

Impact of the transition to a low-carbon economy on a company's long-term profitability.

**1** "Record damages," see Munich Re NatCatService database (as of March 30, 2021); "Clean energy innovations," see Fatih Birol, head of the International Energy Agency, as quoted in the Financial Times, "How the race for renewable energy is reshaping global politics," Feb. 4, 2021. For illustrative purpose only. There is no guarantee that any forecast made will come to pass. **2** Intergovernmental Panel on Climate Change (IPCC), "Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development," in An IPCC Special Report on the impacts of global warming, 2018. **3** The European Recovery Program, or Marshall Plan, was a U.S.-sponsored, USD13 billion aid program designed to rebuild economies of 17 European countries between April 1948–December 1951. Adjusted for inflation in 2020 terms, the aid would amount to roughly $140 billion in 2020 USD. IPCC estimated in 2018 that 1.5°C-consistent climate policies would require a marked upscaling of energy system supply-side investments of between $1.6–3.8 trillion 2010 USD annually, on average, between 2016–2050. **4** BlackRock Global Client Sustainable Investing Survey. July – September 2020. Respondents included 425 investors in 27 countries representing an estimated USD25 trillion in assets under management. Sustainable investments are defined as portfolios which have a distinct ESG objective (such as thematic or impact), apply exclusionary screens, or optimize towards ESG. It does not include ESG-integrated portfolios, company engagement or proxy voting. There is no guarantee that any forecasts made will come to pass; https://www.blackrock.com/corporate/literature/publication/blackrock-sustainability-survey.pdf. **5** BlackRock analysis of Morningstar global data; (as of Dec. 31, 2020). **6** BlackRock Investment Institute, "Sustainability: The tectonic shift transforming investing." February 2020. **7** MSCI, "Foundations of Climate Investing: How Equity Markets Have Priced Climate Transition Risks," March 2021.**8** BlackRock Global Client Sustainable Investing Survey. July – September 2020. Respondents included 425 investors in 27 countries representing an estimated USD25 trillion in assets under management. 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MacWilliams et al, Columbia Center on Global Policy, "PG&E: Market and Policy Perspectives on the First Climate Change Bankruptcy," Aug. 15, 2019; PowerTechnology, "Third energy firm declares bankruptcy in Texas snow storm fallout," March 16, 2021. **14** Moody's Investors Service, "Thirteen sectors with $3.4 trillion of debt face heightened environmental credit risk," Dec. 14, 2020. **15** Patrycja Klusak et al, University of Cambridge Bennett Institute, "Rising Temperatures, Falling Ratings: The Effect of Climate Change on Sovereign Creditworthiness," March 2021. **16** BlackRock Investment Institute, "Getting Physical: Scenario analysis for assessing climate-related risks." April 2019. **17** BlackRock, Larry Fink's 2021 Letter to CEOs, Jan. 26, 2021. **18** Climate Change Laws of the World (as of January 2021.) **19** Financial Times, "Lex in Depth: the $900bn cost of 'stranded energy assets,'" Feb. 4, 2020. **20** S&P Global Ratings, "S&P Global Ratings Takes Multiple Rating Actions On Major Oil And Gas Companies To Factor In Greater Industry Risks,"January 2021; Fitch Ratings, "Climate Change 'Stranded Assets' Are a Long-Term Risk for Some Sovereigns," February 2021. **21** McKinsey & Co., "The state of internal carbon pricing," Feb. 10, 2021. **22** New York Times, "For Shell, Oil Is Past Its Peak," Feb. 12, 2021; Financial Times, "Volvo Cars to go all electric by 2030 as it shifts sales online, March 2, 2021; Reuters, "Nippon Steel to boost R&D spending to hasten decarbonization," March 1, 2021. **23** Reuters, "Spanish energy companies to carry the torch for renewable deals," March 1, 2021. **24** BP, Statistical Review of World Energy 2020. **25** Fatih Birol, head of the International Energy Agency, as quoted in the Financial Times, "How the race for renewable energy is reshaping global politics," Feb. 4, 2021. For illustrative purpose only. There is no guarantee that any forecast made will come to pass. **26** Global EV outlook 2018, International Energy Agency, June 2020. **27** McKinsey & Co., "These 9 technological innovations will shape the sustainability agenda in 2019," Jan. 7, 2019. **28** International Energy Agency, "Renewables 2020: Analysis and forecast to 2025," November 2020. **29** MSCI, "Foundations of Climate Investing: How Equity Markets Have Priced Climate Transition Risks," March 2021. Data from Jan. 31, 2015, to Jan. 31, 2021. **30** United Nations Development Programme "Peoples' Climate Vote," Jan. 26, 2021. The Peoples' Climate Vote involved two "big picture" questions followed by six policy questions where the respondent could select up to three preferences per question (18 total). The survey was distributed to people via advertising on mobile gaming networks. Some 30.7 million invitations were issued, and the survey yielded 1.4 million responses, a response rate of 4.6% across the 50 countries. Data report is based on analysis of the 1.22 million respondents who answered all three demographic questions and at least the first question on climate change. https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/The-Peoples-Climate-Vote-Results.html. **31** Ibid. **32** GM CEO Mary Barra on LinkedIn, "General Motors Intends to Lead the Auto Industry and the World to a Net-Zero-Carbon Future, Jan. 28, 2021; Volvo Cars press release, "Volvo Cars to be fully electric by 2030, March 2, 2021. **33** Financial Times," New BP boss Bernard Looney pledges net zero carbon emissions by 2050," Feb. 12, 2020. **34** CDP Worldwide (November 2020). **35** BlackRock analysis of Morningstar global data; (as of Dec. 31, 2020). **36** BlackRock (encompassing 43 ETFs); Morningstar (encompassing 16 mutual funds) as of Feb. 28, 2021. Mutual fund data calculated on oldest shares class of funds that report an expense ratio in their prospectus. **37** Morningstar (data as of Dec. 31, 2020). **38** MSCI, "Foundations of Climate Investing: How Equity Markets Have Priced Climate Transition Risks," March 2021.

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