



# Climate Report 2025





# Table of Contents



About Breckinridge	3
A Letter from Our CEO	4
About This Report	5
Status of the Energy Transition	6
Governance	10
Overview of Climate Risks	11
Investments	12
Municipal Bonds	13
Corporate Bonds	18
Agency Mortgage-Backed Securities (MBS)	21
Non-Agency Commercial MBS (CMBS)	23
Asset-Backed Securities (ABS)	24
Sovereigns	24
Investing in Climate Solutions	26
Conclusion	28





# About Breckinridge

Breckinridge Capital Advisors is a Boston-based, independently owned asset manager working to provide the highest caliber of investment management. We serve private clients and institutions through a network of financial advisors, consultants and family offices.

## OUR MISSION

Our mission is to work to provide the highest caliber of investment management, thereby facilitating a sustainable flow of capital from long-term investors to responsible issuers. As of June 30, 2025, Breckinridge manages more than \$51 billion in assets for clients.

## OUR INVESTMENT PHILOSOPHY

Our investment philosophy holds that investors are well-served by counterbalancing higher-risk assets with high-quality investments. Rigorous, independent research is a hallmark of Breckinridge. Our analyst teams seek to ensure that securities selected for our clients' portfolios meet our standards for risk and return.

## OUR INVESTMENT PROCESS

Our investment process combines the traditional discipline afforded by fundamental financial analysis with innovative integration of key sustainability risks that could have the potential to materially affect the credit quality of security issuers over the long-term.





# A Letter from Our CEO

We are pleased to publish our Climate Report; we anticipate it will be updated as needed in the coming years. Our current approach to climate risk integration shared in the following pages captures over a decade of learning and innovation by Breckinridge’s investment team.

Breckinridge continues to believe that the changing climate should be a material consideration for investors. The rise in greenhouse gas (GHG) emissions is contributing to more extreme and damaging weather events, which now cost the U.S. economy almost \$150 billion annually.<sup>1</sup> Regulation continues to be a risk; in 2023, 23% of global emissions were tied to a price on carbon, an increase from just 5% in 2010.<sup>2</sup> Decarbonization efforts continue in many places. In short, the physical impacts of climate change are being felt and are expected to worsen in the coming years while the energy transition advances. Breckinridge is accounting for both forms of risk, as well as related opportunities, across our investments.

In conjunction with this report, we are excited to announce a new enhancement to our climate risk integration process, as detailed later in this report in the section on Strategy & Risk Management for municipal bonds. In addition to considering climate risks when assessing credit quality of any individual issuer, we now measure and monitor market-value weighted exposure to three climate hazards (hurricane, wildfire and flood) in our sustainable tax-efficient strategies on a benchmark-relative basis.

Finally, I want to emphasize that our commitment to climate risk integration is ongoing. As discussed in this report, we have made broad strides in our capability to consider the effects of climate change on the value of client assets. However, these threats will continue to evolve and likely intensify in ways that may be difficult to anticipate. We will remain vigilant, with the understanding that climate risk is a material financial risk for our borrowers and, by definition, our clients.

We look forward to your questions and comments.

Sincerely,

**Ognjen Sosa, CAIA, FRM**  
Chief Executive Officer



1. [https://repository.library.noaa.gov/view/noaa/61592/noaa\\_61592\\_DS1.pdf](https://repository.library.noaa.gov/view/noaa/61592/noaa_61592_DS1.pdf)  
2. <https://www.economist.com/finance-and-economics/2023/10/01/how-carbon-prices-are-taking-over-the-world>





# About This Report

## FRAMEWORK

Our Climate Report is informed by the Task Force on Climate-related Financial Disclosures (TCFD), now overseen by the International Financial Reporting Standards (IFRS) Foundation. TCFD provides a framework for organizations to report their exposure and management of risks attributed to climate change. The risks can be physical in nature, such as from an extreme weather event, or from the ongoing transition to a global economy with a diminishing reliance on fossil fuel-based energy.

## RISK MANAGEMENT

Breckinridge is most exposed to physical and transition risks in the investments made on behalf of our clients. Therefore, this report focuses on our methods for integrating and mitigating climate considerations in our investment process. We also touch on the selectively available opportunity to invest in climate solutions in high grade bonds.

In alignment with the TCFD framework, we detail our approach to climate risk Governance. This section is followed by sector-specific explanations of our approaches to Strategy, Risk Management, and our integration of Metrics & Targets.

All data in this report are as December 31, 2024, unless otherwise noted.





# Status of the Energy Transition

This report was published during a period of shifting perceptions about the dangers of a warming climate. Sentiment regarding the need to prioritize climate action has changed due to various recent events including war, elections and the artificial intelligence (AI) boom. In addition, several structural trends, including the enduring demand for traditional energy and the rapid growth in solar energy, are likely to impact the pace of the transition in the coming years.

“*This report was published during a period of shifting perceptions about the dangers of a warming climate.*”







## Global Events Are Affecting the Energy Transition

Russia’s invasion of Ukraine in February 2022 and the resulting spike in energy prices called into question the European Union’s dependence on Russian natural gas. In response, the European Union (EU) pledged to create a more resilient energy system, in part by accelerating the roll out of renewable power.<sup>3</sup> In addition, the war and a broad-based rise in geopolitical tensions have highlighted the need for energy security worldwide. Countries, especially in the EU, are diversifying their supply of oil and gas.

Elections are also impacting the transition. The Trump administration made a significant shift in U.S. environmental policy compared to previous presidencies. The administration supports the view that climate change is not a crisis in need of immediate attention.<sup>4</sup> As a result, the federal government has proposed rolling back emissions regulations for fossil fuel plants, while calling for stricter permitting for wind projects. Meanwhile, the One Big Beautiful Bill Act sunsets wind and solar tax credits earlier than enacted by the Inflation Reduction Act. These changes could put over 2,500 announced wind and solar projects, with a capacity of approximately 383 nuclear plants, at risk of moving forward.<sup>5</sup>

Instead of renewables, the U.S. is emphasizing energy abundance from various sources including traditional oil and gas and advanced nuclear.<sup>6</sup> Rising electricity demand forecasts have highlighted potential shortfalls in grid capacity that could impact reliability. The administration has declared a national energy emergency that promotes diversified, reliable, and affordable power to drive industrial growth.<sup>7</sup> The administration is also entering bilateral trade deals aimed at boosting liquified natural gas (LNG) exports, further lifting global fossil-fuel demand.<sup>8</sup>

AI’s rapid expansion will likely affect how utilities are able to decarbonize their electricity generation. The growing influence of AI on the U.S. economy is forecast to spur large capital expenditures (capex) in technology and other sectors. One study estimates potential capex spending of nearly \$3 trillion, excluding energy costs, through 2028 on data centers to house computers for AI.<sup>9</sup> To meet the power demands of data centers, the utility sector will need to invest heavily. Investments will influence future GHG emissions depending on the mix of fuel sources.<sup>10</sup> For example, to power its data centers, Microsoft Corporation partnered with Constellation Energy to reopen its Three Mile Island Unit 1 nuclear facility.<sup>11</sup> Meanwhile, Georgia Power, the large electric utility, announced that it will delay the closure of coal plants due to an expected increase in power demand in its service area, particularly for data centers.<sup>12</sup>

## Longer-Term Trends Will Influence the Transition

To estimate the longer-term trajectory of global GHG emissions, we should balance the ongoing demand for fossil fuels against developments in low-carbon technologies. Other factors include sovereign decarbonization pledges, the growth in solar energy and corporate commitments to climate goals.

### Demand for Traditional Forms of Energy

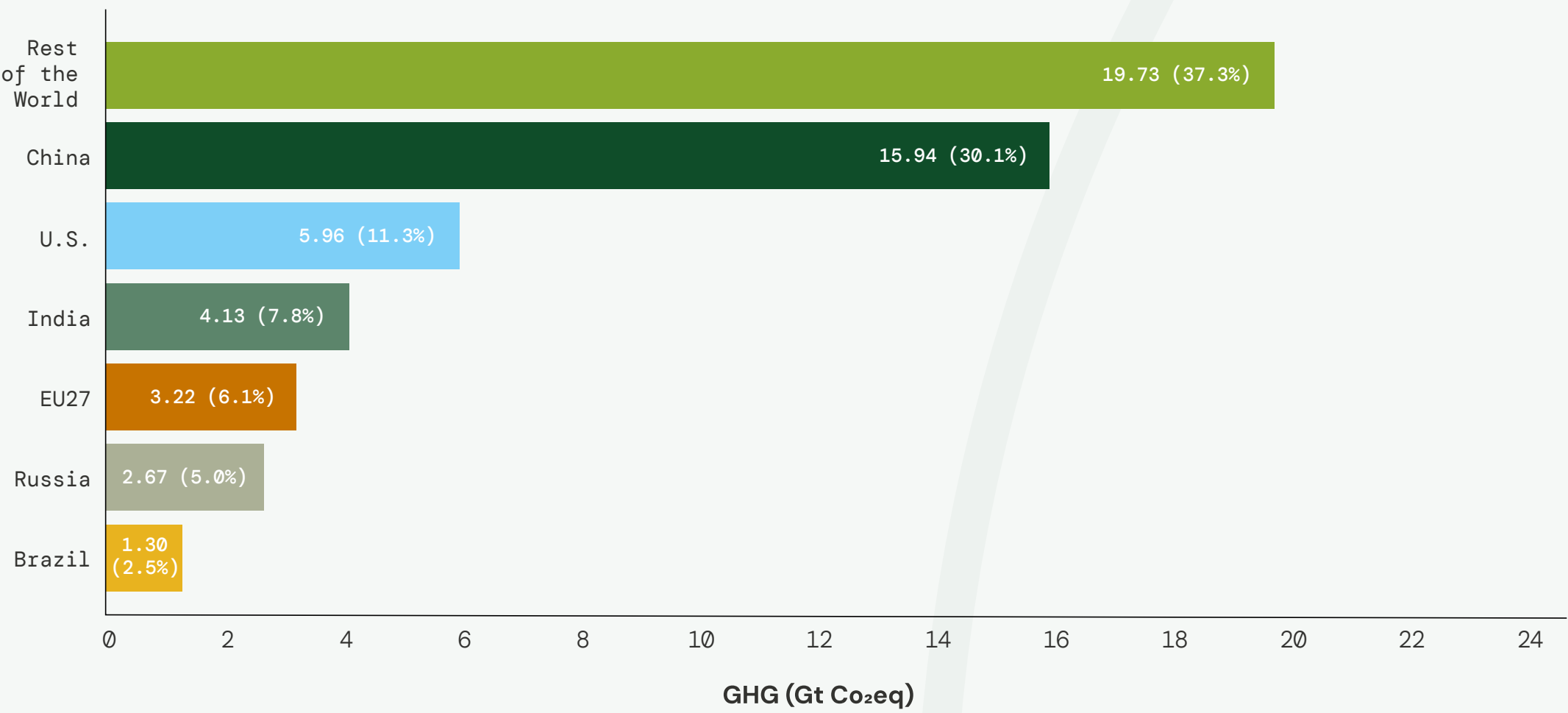
Traditional sources of energy are structurally supported by their benefits. The world has come to depend on its reliability, as fossil fuels can generate consistent power, and availability, with a global infrastructure in place to extract, refine and distribute them. As a result, traditional forms of energy remain in high demand. According to the International Energy Agency (IEA), global coal consumption rose 1.2% in 2024. The growth was driven largely by China and India, as heatwaves boosted electricity usage for air conditioning. The amount of coal consumed in China was a record.<sup>13</sup> Natural gas consumption also rose in 2024 by 2.8%, on demand from Asia.<sup>14</sup> Supply has been supported by an increase in LNG shipments from the U.S. Most U.S. LNG exports were bound for the EU, as the region moved away from Russian natural gas.<sup>15</sup> Finally, demand for oil also rose in 2024, although more modestly than 2023. Slower growth stemmed from weaker industrial activity and a rise in electric vehicles. Approximately half of the growth in 2024 was used for chemical feedstocks, such as for fertilizers and textiles, and aviation.<sup>16</sup>

Demand for oil and gas may persist, as certain aspects of the economy could prove to be difficult to decarbonize. Transportation, including trucking and aviation, and heavy industry are investigating alternative sources of power such as hydrogen and sustainable aviation fuel. However, the potential to meaningfully reduce emissions footprints could take time.

Oil and gas are also used to manufacture plastics. According to the Organization for Economic Cooperation and Development (OECD), plastic production is forecast to increase 70% by 2040, driving ongoing use of fossil fuels.<sup>17</sup> Finally, global electricity generation is expected to increase 70% by 2050 per Bloomberg New Energy Finance (BNEF) due to data centers, electric vehicles and industrial electrification.<sup>18</sup> This magnitude of growth may require fossil fuel plants to operate longer than previously expected according to transition advocates.

Overall, projections indicate that fossil fuel-based energy will comprise a substantial percentage of the world’s supply in 2050. For example, the Organization of the Petroleum Exporting Countries (OPEC) Reference Case predicts that oil, coal and gas will represent 67% of global primary energy demand by mid-century.<sup>19</sup> This compares to 82% in 2024.<sup>20</sup>

FIGURE 1: GLOBAL EMISSIONS



Source: Economic Analysis of Fossil CO2 Emissions: A European Perspective on Sustainable Development. [Research paper is available here.](#)

3. EU action to address the energy crisis, [https://commission.europa.eu/topics/energy/eu-action-address-energy-crisis\\_en](https://commission.europa.eu/topics/energy/eu-action-address-energy-crisis_en)  
4. <https://www.npr.org/2025/05/29/nx-sl-5400601/energy-secretary-chris-wright-argues-climate-change-isnt-a-crisis#:~:text=Energy%20Secretary%20Chris%20Wright%20is%20a%20former%20Colorado%20oil%20and,new%20climate%20friendly%20energy%20sources>  
5. Bloomberg, 8/15/2025, “Trump Treasury Weighs Fate of Hundreds of Wind, Solar Projects”  
6. <https://www.energy.gov/articles/secretary-wright-acts-unleash-golden-era-american-energy-dominance>  
7. <https://www.whitehouse.gov/presidential-actions/2025/01/declaring-a-national-energy-emergency/>  
8. <https://www.nytimes.com/2025/07/31/business/economy/trump-trade-deals-lng.html>  
9. “Corporate Credit’s Role in Data Center Financing,” *Morgan Stanley Research*, August 12, 2025.  
10. The Greenhouse Gas Protocol, the climate accounting standard setter, classifies a company’s greenhouse gas (GHG) emissions across three categories or scopes. Scope 1 represents emissions from company owned assets such as onsite energy generation or a fleet of delivery vehicles. Scope 2 is indirect emissions from purchased electricity. Scope 3 encompasses all other indirect corporate GHG emissions. It consists of fifteen sub-categories representing activities along a company’s value chain.  
11. <https://www.constellationenergy.com/newsroom/2024/Constellation-to-Launch-Crane-Clean-Energy-Center-Restoring-Jobs-and-Carbon-Free-Power-to-The-Grid.html#:~:text=Constellation%20signs%20its%20largest%20Dever,%2C%20president%20and%20CEO%2C%20Constellation>  
12. Georgia Power cancels coal plant closures, chooses fossil fuels to meet demand – *The Current*  
13. <https://www.iea.org/reports/global-energy-review-2025/coal>  
14. <https://www.iea.org/energy-system/fossil-fuels/natural-gas>  
15. “Key US natural gas trends to track as LNG exports hit new highs,” *Reuters*  
16. <https://www.iea.org/reports/global-energy-review-2025/oil>  
17. <https://www.oecd.org/en/topics/plastics.html#:~:text=Global%20plastics%20use%20will%20continue,Asia%20Other%20Asia%20Projection%20Projection>  
18. Bloomberg NEF, “Comparing Long-Term Energy Outlooks 2025.”  
19. Organization of Petroleum Exporting Countries, 2025 World Oil Outlook 2050, <https://www.opec.org/assets/assetdb/woo-2025-1.pdf>  
20. Bloomberg NEF, “Comparing Long-Term Energy Outlooks 2025.”





China and India Pledge to Reduce Emissions

China and India account for almost 38% of the global GHG footprint (Figure 1). In terms of their progress in transitioning to lower-carbon energy, the picture is mixed. Despite China generating the most GHG pollution, the country has become a leader in solar, battery and electric vehicle development. Although China consumes the most coal globally, it also generates the most renewable power. President Xi Jinping pledged that China would aim to peak emissions before 2030 and achieve carbon neutrality by 2060. Meanwhile, India successfully achieved 50% of its power generation in renewable power.<sup>21</sup> Yet, 12.8 gigawatts (GW) in coal plants were newly proposed in India during the first six months in 2025, the second most of any country (China is first on the list).<sup>22</sup> India committed to the United Nations Climate Promise to reduce emissions intensity as a unit of gross domestic product (GDP) 45% by 2030 and Net Zero by 2070. Bloomberg New Energy Finance (BNEF) forecasts India’s energy-related emissions will peak in 2044.<sup>23</sup> The rate and type of energy investments by these major emitters will weigh on the global GHG trajectory in the coming decades.

Solar as a Bright Spot

A bright spot in the energy transition story is solar power, which is experiencing astounding growth worldwide. As shown in Figure 2, almost 597 GW of solar was installed with 50 GW in the U.S., both records. For context, global power additions in 2024 were 786 GW, with solar representing 76% of the total and wind an additional 15%.<sup>24</sup>

Driving its widespread use is economics and speed to install. Solar, as well as onshore wind, are now the cheapest forms of electricity generation in some regions globally (Figure 3). Solar also benefits from fewer grid connection constraints, as infrastructure can be sited closer to existing transmission lines, generate zero noise, and do not require pipeline connections, as in the case for a gas plant. Ongoing fuel and operational costs are substantially lower than coal. The grid connection benefits are important considerations for developing nations. Levelized cost of energy (LCOE) will ultimately vary by country or region, based on the availability of fuel imports, solar irradiance, and wind speed.

Solar’s rapid global expansion is expected to continue. The IEA predicts that solar will be the largest source of renewable power by 2029.<sup>25</sup> Looking farther, BNEF predicts that solar could account for 29% of all electricity generation in 2050, up from 8% in 2024.<sup>26</sup> In addition, solar paired with battery storage is becoming an increasingly viable renewable energy solution. LCOEs continue to decline for battery storage (Figure 3). Solar combined with batteries can improve economics and offset electric power dispatchability limitations.

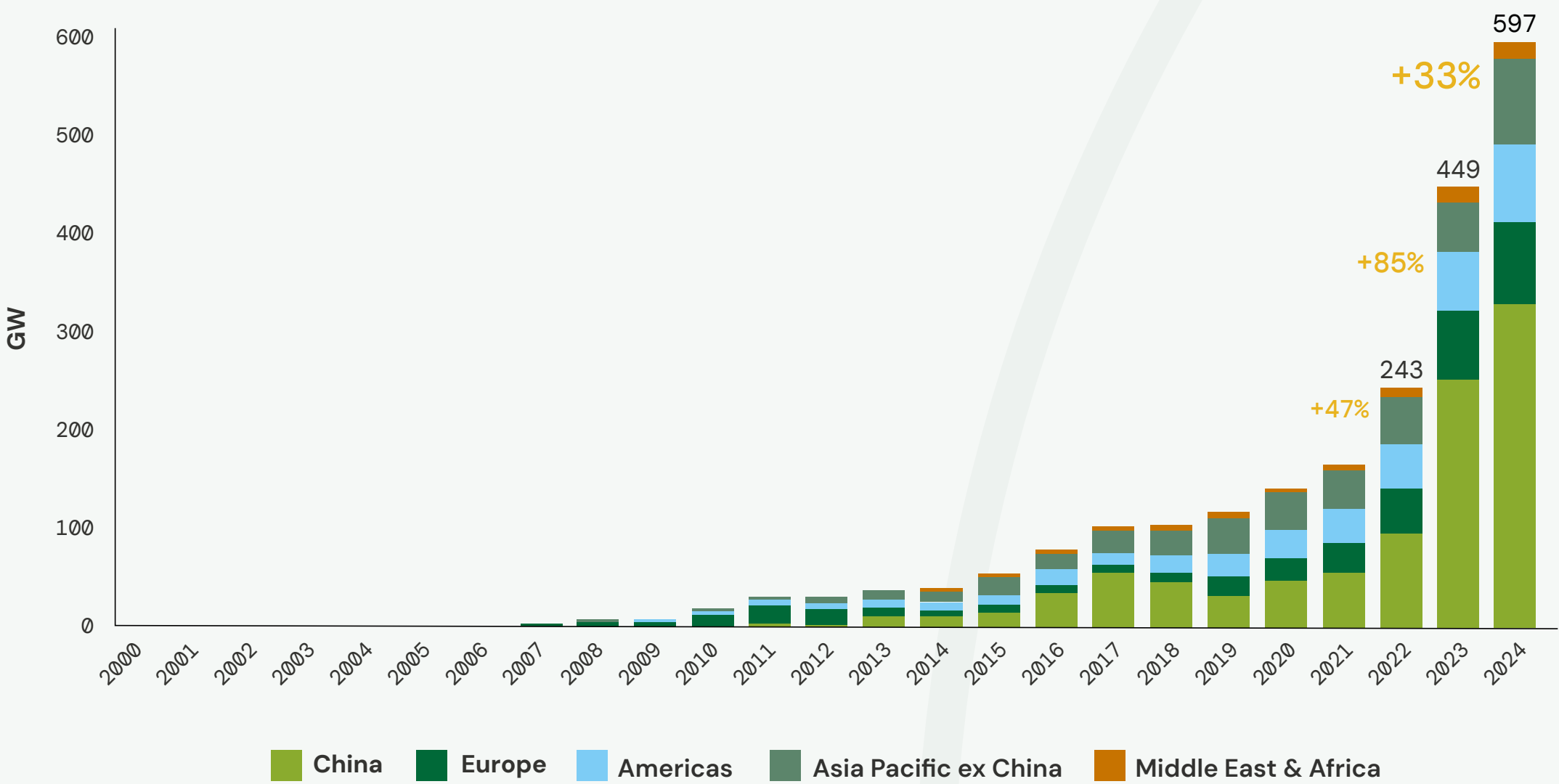
Corporate Climate Commitments

We believe corporations will play an important role in the energy transition. Although there have been high profile instances of companies backtracking on their climate ambitions, we expect many will move forward on their GHG reduction goals.<sup>27</sup> A 2024 study cited by *The Economist* found that 67% of 4,000 companies were on track to achieve their climate targets, a 3 percentage point increase from 2023.<sup>28</sup>

We believe that management teams, particularly those operating in emissions-intensive sectors, will strategically decarbonize their businesses over time because transition risk will likely be increasingly viewed as a material financial risk. To varying degrees, companies with large carbon footprints may be pressured by consumers, regulators, and investors to mitigate their GHG footprints over time. It is important to note that companies may be less public about commitments given the scrutiny from certain jurisdictions. As a result, they may seek to advance on their goals quietly by “greenhushing.”<sup>29</sup>

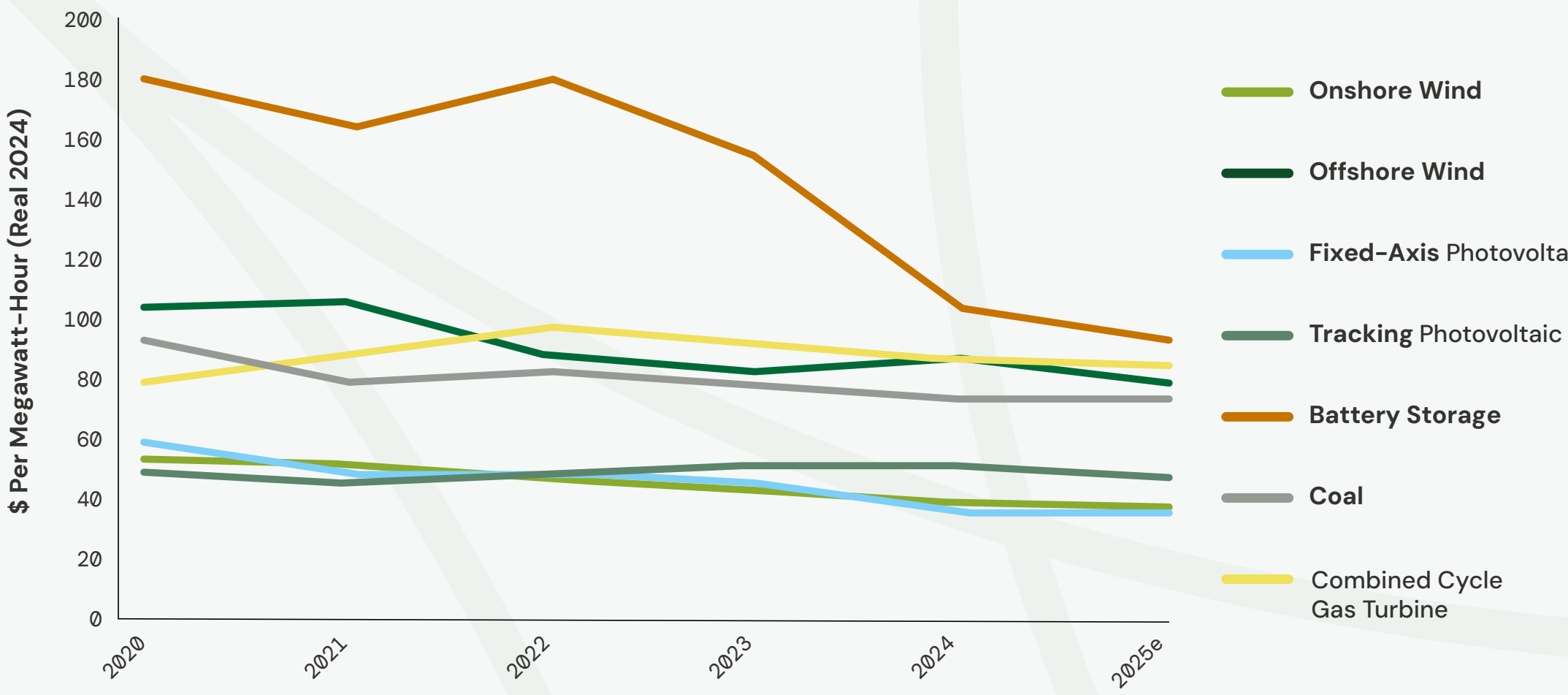
In sum, the decarbonization landscape has been altered by several recent events. It will also be guided by several structural trends. The dynamics are taking place against a backdrop of rising global GHG emissions and the consensus recommendation among climate scientists that emissions must fall to net zero by 2050 to avoid the worst effects of climate change.<sup>30</sup> While not addressed in this report, there is the potential for technologies such as carbon capture utilization and storage, small modular reactors, green hydrogen, carbon dioxide removal, low-carbon steel and cement, and other innovations to meaningfully reduce future emissions. It is also possible that the necessary pace of emission reductions will be delayed, due possibly to factors highlighted above. If this scenario were to occur, we believe climate risk analysis in investment research will become even more important over time.

FIGURE 2: ANNUAL SOLAR PV INSTALLED 2000-2024



Source: SolarPower Europe

FIGURE 3: SOLAR & WIND OFFER MOST COST-COMPETITIVE ELECTRICITY (GLOBAL LEVELIZED COST OF ENERGY)



Source: Bloomberg NEF, Comparing Long-Term Energy Outlooks 2025

21. Bloomberg NEF, “New Energy Outlook 2025: India.”  
22. Guest post: China and India account for 87% of new coal-power capacity so far in 2025 – Carbon Brief  
23. Bloomberg NEF, “New Energy Outlook 2025: India.”  
24. Bloomberg NEF, “Comparing Long-Term Energy Outlooks 2025.”  
25. <https://www.iea.org/energy-system/renewables/solar-pv>  
26. Bloomberg NEF, “Comparing Long-Term Energy Outlooks 2025.”  
27. Companies that cut back on their renewable energy and carbon reduction goals include Shell plc and BP plc. <https://www.fastcompany.com/91253071/bp-shell-backtracked-climate-goals-2024-heres-why>  
28. <https://www.economist.com/business/2025/07/29/the-remarkable-rise-of-greenhushing>  
29. <https://www.economist.com/business/2025/07/29/the-remarkable-rise-of-greenhushing>  
30. <https://www.iea.org/reports/global-energy-review-2025/co2-emissions>. The IEA notes that “Total energy-related CO2 emissions increased by 0.8% in 2024, hitting an all-time high of 37.8 Gt CO2. This rise contributed to record atmospheric CO2 concentrations of 422.5 ppm in 2024, around 3 ppm higher than 2023 and 50% higher than pre-industrial levels.”; <https://www.ipcc.ch/sr15/#:~:text=In%20model%20pathways%20with%20no,or%20sequestration%20in%20geological%20reservoirs.>









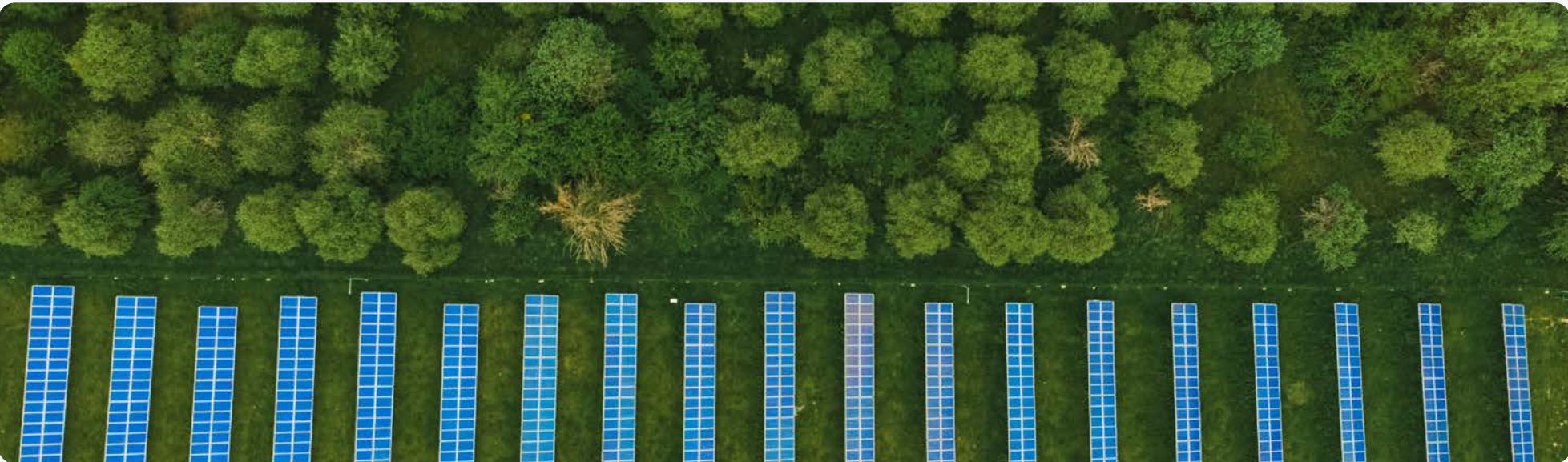
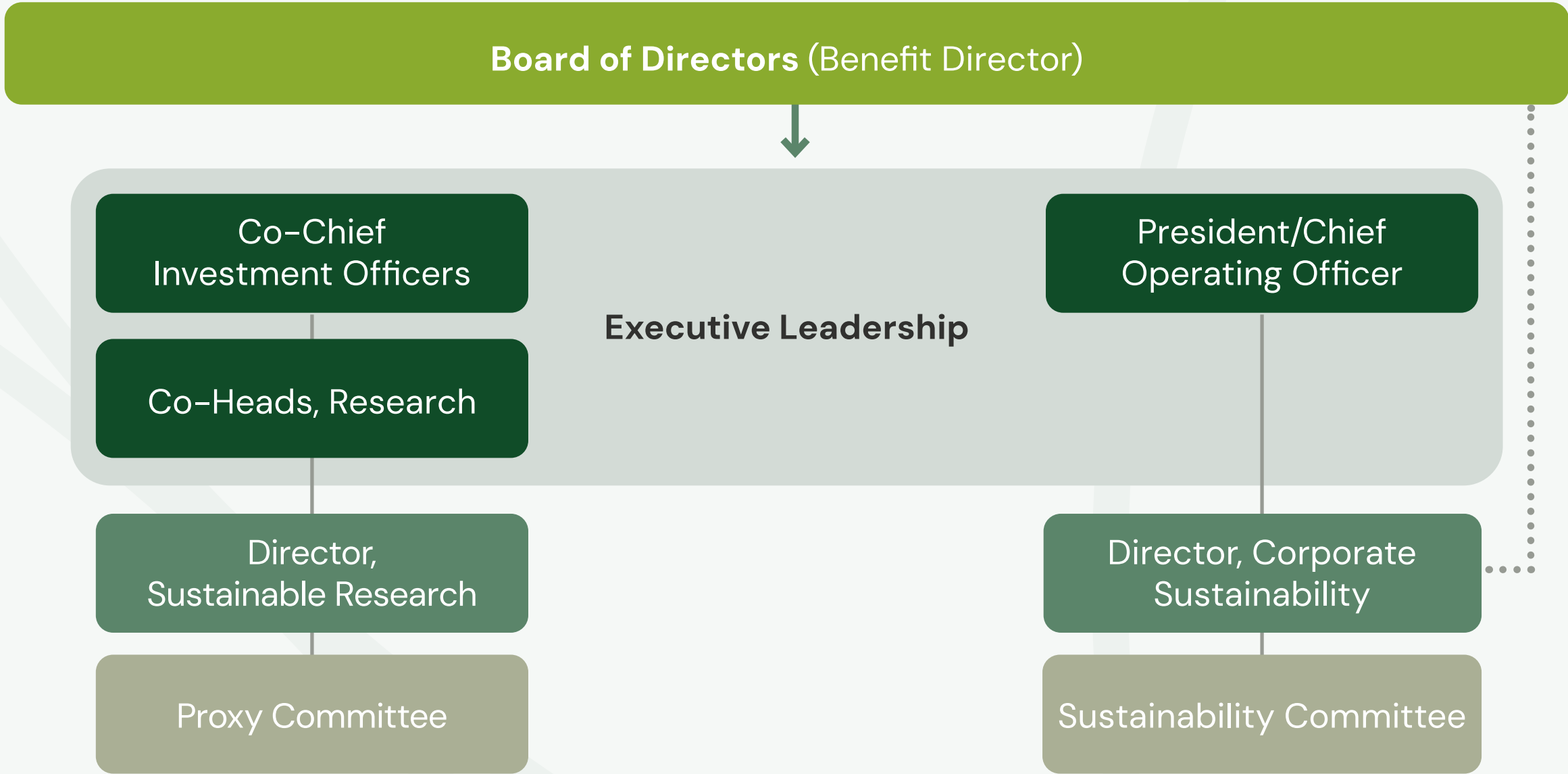
# Governance

Breckinridge’s mission is to provide the highest caliber of investment management, thereby facilitating a sustainable flow of capital from long-term investors to responsible issuers. Our commitment to remaining independent lends itself well to this, as does our Benefit Corporation status, which requires that we consider all stakeholders—including shareholders, employees, clients, communities, vendors and the environment—in our business decisions.

To illustrate, we detail the governance of sustainability within the firm. Our corporate sustainability initiatives are spearheaded by the Director of Corporate Sustainability, who reports directly to the President and the Board of Directors. Supported by the Sustainability Committee, the Director collaborates with departmental heads to implement social and environmental sustainability measures across the business.

Our Co-Chief Investment Officers lead an investment team that integrates material sustainability issues, including risks linked to a changing climate, along with other factors to inform fundamental credit analysis in our investment process. Guided by our Co-Heads of Research and the Director of Sustainable Research, evaluations of sustainability risks, complemented by direct engagement with issuers, inform our internal opinions and ratings. Additionally, related to our High Quality Dividend Strategy, our Proxy Committee oversees the proxy voting process, including the application of sustainable risk factors. We believe this structure, with roles dedicated to managing sustainability risks, supported by committees and reporting to executive leadership and the Board of Directors, underscores the firm’s commitment to sustainability.

FIGURE 4: HOW SUSTAINABILITY IS GOVERNED AT BRECKINRIDGE







# Overview of Climate Risks

There are two types of climate risk: transition-based and physical.

Transition risk is defined as the threats posed by a shift to a lower-carbon economy. Threats include policy and legal risk, such as when a country or region passes a carbon tax; or reputation risk, which could occur when consumers seek products from companies with lower emissions. Physical risk takes the form of either an acute or chronic hazard. It is associated with the tangible impacts of a changing climate, such as from persistent and dangerous heat waves.<sup>31</sup>

The two forms of climate risk and examples of impacts from the risks are summarized in Figure 5.

Like many sustainability factors, the relevance of climate risk or opportunities for a sector may vary. Unlike many other sustainability factors, however, climate risk is pervasive across the economy and geographies.

Breckinridge evaluates climate risks as part of our overall sustainability research process. This analysis supports investment decisions across five fixed income sectors: municipal bonds, corporate bonds, agency MBS, ABS and non-agency CMBS. Our approach to climate risk integration reflects the unique nature of each sector (Figure 6), with our corporate framework also being leveraged for our equity strategies.

Over time, we believe that a lack of management of climate hazards by issuers may lead to an uptick in downgrades by credit rating agencies, financial distress, and a devaluation of our investments. Knowing an issuer’s exposure to risks, such as rising sea levels or wildfires, as well as any adaptation strategies, is critical to developing a forward-looking credit profile. Breckinridge’s evaluation of climate threats is based on materiality and incorporated into our sustainability rating, climate transition risk assessment, and/or internal credit rating, where relevant.<sup>32</sup>

We describe in the sections to follow our approach to climate risk integration across the sectors where we actively invest.

FIGURE 5: CATEGORIES OF CLIMATE RISK

## Transition Risks

- 


**POLICY & LEGAL RISKS**  
Carbon Pricing Regulations
- 

**TECHNOLOGY RISKS**  
Rapid Deployment of Renewable Energy
- 

**MARKET RISKS**  
Shift in Supply or Demand for Certain Commodities
- 

**REPUTATION RISKS**  
Change in Consumer Perceptions

## Physical Risks

- 

**ACUTE RISKS**  
Event-Driven Extreme Weather (e.g., Hurricane)
- 

**CHRONIC RISKS**  
Longer-Term Shift in Weather Patterns

Source: Recommendations of the Task Force on Climate-Related Financial Disclosures, Final Report

FIGURE 6: CLIMATE RISK EVALUATION ACROSS SECTORS

Sector	Physical Risk (Acute & Chronic)		Transition Risk	
Corporates	X	<ul style="list-style-type: none"><li>Supply chain disruptions</li><li>Capital-intensive locations at risk</li></ul>	X	<ul style="list-style-type: none"><li>Policy risk from new carbon regulations</li><li>Stranded asset risk</li></ul>
Municipals	X	<ul style="list-style-type: none"><li>Physical damage to local infrastructure</li><li>Inherent inability to relocate</li></ul>	X	<ul style="list-style-type: none"><li>Service area socioeconomic and demographic changes</li><li>Emissions-related regulatory risks</li></ul>
Agency MBS/CMBS	X	<ul style="list-style-type: none"><li>Physical damage to collateral may contribute to accelerated buyout-related prepayment speeds and/or lead to isolated defaults</li></ul>	X	<ul style="list-style-type: none"><li>Overall minimal</li></ul>
ABS	X	<ul style="list-style-type: none"><li>Overall minimal</li></ul>	X	<ul style="list-style-type: none"><li>Overall minimal</li></ul>
Non-Agency CMBS	X	<ul style="list-style-type: none"><li>Physical damage to collateral may sharply reduce asset value and/or lead to isolated defaults</li></ul>	X	<ul style="list-style-type: none"><li>Overall minimal</li></ul>
High	Sustainable research priority and can be material in certain cases			
Medium	Not a sustainable research priority but can be material in certain cases			
Low	Not a sustainable research priority and unlikely to be material			

Source: Breckinridge Capital Advisors, 2024

31. Recommendations of the *Task Force on Climate-related Disclosures, Final Report*, June 2017.  
32. Breckinridge integrates material sustainability factors, including climate risks, into our fundamental credit research process to help us assess and price credit risk of issuers. This approach allows our analysts to gather and evaluate diverse pieces of information to formulate a comprehensive investment thesis. Breckinridge’s research team selects sustainability factors based on their investment-decision usefulness. A factor is considered material if it can influence our credit opinion or impact a security’s valuation. The degree of materiality for any one sustainable factor may change over time, depending on the macro environment or sector-specific trends. For more information, please see our Sustainable Investing Policy.





# Investments

*“Knowing an issuer’s exposure to risks, such as rising sea levels or wildfires, as well as any adaptation strategies, is critical to developing a forward-looking credit profile.”*







# Municipal Bonds

## INTRODUCTION

Breckinridge believes U.S. municipalities that are conscious of and effective in managing material sustainability issues are likely to carry less credit risk over the long term. A key research focus area for us is understanding a municipality’s exposure to various climate perils and its plan to address these risks.

Although climate change is a material municipal credit risk that warrants diligent monitoring, Breckinridge continues to find little evidence of a physical climate risk pricing penalty in the U.S. municipal bond market. We shared our view on the pricing disconnect in an article, [Heating Up: The Muni Market Inches Closer to Pricing Climate Risk](#). We highlight several reasons why municipal bond investors are not valuing climate risk in security pricing in any meaningful way. Their motives include the fact that bonds that exhibit material physical risk are unlikely to experience credit weakening over the near-term, and that credit fundamentals in the most at-risk regions of the country have generally improved.

However, Breckinridge anticipates the muni market is getting closer to pricing physical climate risk. There are five trends that support our thesis. These include: (1) a changing insurance environment, (2) improving climate risk disclosures, (3) the emerging ability to scale climate data inputs, (4) a normalization in credit fundamentals, and (5) an uptick in climate-adjacent credit events.

To highlight one of the trends, the evidence that physical climate risk can directly translate to credit risk continues to grow. In 2023, tax-exempt bonds issued by Hawaiian Electric Co. were downgraded from BBB to B- after the company was identified as potentially liable for the Lahaina, Hawaii, wildfire.<sup>33</sup> The Paradise California Redevelopment Agency (RDA) defaulted on bonds impacted by the 2018 Camp Fire.<sup>34</sup> In 2024, the City of Clyde, Texas, defaulted on two bond issues

(both of which were insured), due to low water/sewer revenues following long-term drought conditions. The City warned that it only had water levels sufficient for another year, and the City chose not to use its general obligation pledge for the repayment of these bonds. These events highlight that bond repayment norms after a natural disaster or ongoing climate stress may be changing.<sup>35</sup>

In addition, market pricing of climate risk is also evolving, though slowly. While the primary municipal bond market has not historically applied price penalties for the risk exposure, this may be changing following recent events. Following the Los Angeles wildfires in January 2025, Breckinridge noted a significant spread widening in the secondary market for bonds exposed to this major disaster. Combined with changes in insurance market availability and uncertainty around Federal Emergency Management Agency (FEMA) funding, these events could signal the beginning of more appropriate pricing around these risks.

Transition risk may also be increasingly relevant, albeit much less so than physical risk, for municipal issuers. For example, California enacted two laws to require large organizations, including nonprofits to track and disclose their Scope 1, 2, and 3 GHG emissions.<sup>36</sup> Additionally, an increasing number of municipalities now track and report climate information to CDP.<sup>37</sup> These data include GHG emissions, climate targets, and mitigation and adaptation strategies.

More generally, mentions of “climate change” in official municipal bond market offering statements increased from approximately 5% to 30–35% over the last decade. While still not standardized across the market, disclosure quality has improved substantially, particularly among larger, more sophisticated issuers. We expect this trend to continue.

### Breckinridge believes the municipal bond market is closer to pricing physical climate risk for these five reasons:

- 1 A changing insurance environment
- 2 Improving climate risk disclosures
- 3 The emerging ability to scale climate data inputs
- 4 A normalization in credit fundamentals
- 5 An uptick in climate-adjacent credit events

33. Standard & Poor’s, “Hawaiian Electric Industries Inc. and Subsidiaries Downgraded to B- on CreditWatch Negative,” August 24, 2023.  
34. Standard & Poor’s, “Paradise Redevelopment Agency, CA Series 2009 Refunding Tax Allocation Bond Rating Lowered to ‘D’ on Payment Default,” June 1, 2023.  
35. For example, the State of California subsidized Paradise’s property tax levy for three years after the Camp Fire. However, it is now clear that investors cannot always rely on similar extraordinary support from a state. See the issuer comment, Paradise (Town of) CA, “Wildfire creates financial turmoil for Paradise, CA redevelopment district,” Moody’s Investors Service, July 21, 2022.  
36. California passed the Climate Corporate Data Accountability Act (SB 253) and the Climate-Related Financial Risk Act (SB 261) in October 2023. More information is available [here](#) and [here](#).  
37. CDP is a global non-profit that runs a leading environmental disclosure system for companies, capital markets, cities, states and regions. Breckinridge has been a CDP investor signatory since 2014.





STRATEGY  
& RISK  
MANAGEMENT

Breckinridge’s approach to sustainable research for U.S. state and local government issuers consists of quantitative and qualitative analysis, and engagement with issuers. To guide our municipal sustainability analysis, we use sector-specific proprietary frameworks to assess these risks for issuers across the largest municipal sectors, such as cities/counties, school districts, and water utilities. The frameworks use data that we obtain from a variety of public sources that include the U.S. Census Bureau, County Health Rankings, and data from other third-party sources. The metrics are weighed based on a 100-point scale and are scored individually for each issuer and metric.

Our analysts use the frameworks to assign a sustainability rating. The rating can influence our credit rating, which is ultimately used for price discovery by our municipal bond traders. We assign a sustainability rating to all of our municipal holdings at time of purchase, regardless of the investment strategy or customization.

Climate risk is an element of our sustainability rating. As part of this analysis, we assess an issuer’s exposure to various climate hazards, alongside its infrastructure, local economy, and public health and safety profile. This analysis helps us gauge the magnitude of an issuer’s physical climate risk relative to implementation of proactive solutions like forward-looking land use planning or more stringent building codes. Breckinridge municipal analysts also consider climate transition risks and opportunities, such as job-market exposure to carbon-intensive industries or emerging clean technologies. Over time, we believe that a lack of management of climate risks may lead to an uptick in issuer downgrades by credit rating agencies, financial distress, and/or a devaluation of investments.

We also view climate risk as a threat multiplier; current climate events can magnify existing credit weaknesses of a municipal bond issuer.<sup>38</sup> For example, pensions are an elevated or growing cost for many cities. Layering on climate change challenges and the potentially large associated costs of adaptation or mitigation could create a competing fiscal demand that might complicate a city’s efforts to control pension costs.

Knowing an issuer’s exposure to risks, such as rising sea levels or wildfires, is critical to developing a forward-looking credit profile. For example, using analysis from the nonprofit Probable Futures, the frequency of extreme heat days (above 90°F) in the U.S. is expected to rise in the coming years.<sup>39</sup> Heat stress can impact utility grids and community services and often disproportionately affects more vulnerable populations, including elderly or low-income individuals. It also has a harmful impact on the agricultural sector, creating additional strain on communities dependent on farming-related jobs and economic activity. Affected communities will face pressure to diversify their economies and could become more dependent on federal or state governments to offset losses in tax revenue. A sample of U.S. regional municipal issuers and related climate change impacts is provided in Figure 7.

Municipal climate adaptation and resiliency projects require commitment of time and money to develop and apply. Therefore, issuers will continue to be exposed in the near-term to the effects of these long-term risks. Understanding the challenges confronting issuers, the potential long-term cost of managing, mitigating or adapting to their effects, and the potential comparative benefit to a municipality that undertakes an effective response is essential to a comprehensive and forward-looking credit analysis.

EXPANDED  
RISK  
MANAGEMENT

Portfolio Management

In 2025, we embarked on an initiative to better monitor physical climate risk at the portfolio level for clients that focuses on monitoring this risk in tax-efficient sustainable portfolios. Our new tool aggregates risks at the portfolio level to each climate hazard, and complements our ongoing bottom-up sustainable framework analysis. We use climate risk data from Intercontinental Exchange (ICE), a third-party data provider, to assess each portfolio’s time-sensitive exposure to hurricane, flood and wildfire risk. We compare the market-value weighted average of each climate hazard to a state-adjusted benchmark, helping to inform our buy and sell discipline.

FIGURE 7: U.S. MUNICIPALITIES & POTENTIAL CLIMATE IMPACTS

U.S. Municipal Bond Issuer	Climate Change Impacts
Atlantic Coastal Communities	An increase in extreme rainfall events and sea level rise threatens housing, coastal energy and roads.
Cities in the Southeast	Rising temperatures pose risks to human health from disease-carrying insects and heat stress.
Electric Utilities in the Northwest	Change in the amount and timing of rainfall threatens the future dependability of hydropower.
Infrastructure in the Northeast	Aging highways and bridges are expected to encounter a warmer and wetter climate, marked by heavier rains and storm surges.

Source: *Fifth National Climate Assessment*.<sup>40</sup>



38. The term threat multiplier was coined in 2007 by the Center for Naval Analyses (CAN) for national security policy discussions to express how climate change can intensify existing challenges and security risks. "Climate Change as a 'Threat Multiplier': History, Uses, and Future of the Concept. Center for Climate & Security, Council on Strategic Risks, January 3, 2023.  
39. Probable Futures. (2023). Maps of Temperature, Days above 32°C (90°F). [https://probablefutures.org/maps/?volume=heat&selected\\_map=days\\_above\\_32c&map\\_version=latest&warming\\_scenario=2&map\\_projection=mercator#2.2/27.31/-5.97](https://probablefutures.org/maps/?volume=heat&selected_map=days_above_32c&map_version=latest&warming_scenario=2&map_projection=mercator#2.2/27.31/-5.97)  
40. The Fifth National Climate Assessment was published in 2023 is available [here](#).





## Case Study

An example of how climate risk influenced our investment opinion involves a county located on the U.S. Gulf Coast. The output from our sustainability framework underscored its exposure to physical climate risk, including hurricanes, flooding and heat stress. Breckinridge's municipal analyst found that county officials had no plans to combat these challenges. As a result, the analyst downgraded the issuer's sustainability rating based on insufficient progress towards addressing these climate risks. The analyst then incorporated these sustainability considerations into our decision to keep the internal credit rating at its current level, despite the issuer's improving finances and low debt burden. Absent the climate risk, the analyst would likely have upgraded the internal credit rating. In this example, we thought the bond prices were not commensurate with the risks we identified.

*“The output from our sustainability framework underscored the county's exposure to physical climate risk.”*







METRICS  
& TARGETS

The metrics used in the ten frameworks were selected to evaluate the unique material risks for each sector. For example, the framework for U.S. cities and counties places greater emphasis on social metrics, such as income inequality, housing affordability and health metrics, while our water & sewer framework focuses on environmental and rate affordability concerns. We incorporate physical risk metrics across all frameworks.

The physical climate risks assessed in our frameworks include hazards related to drought, flood, hurricanes, wildfire, earthquakes and extreme heat. The physical assessment, performed by a third-party vendor partner, reflects the Representative Concentration Pathway (RCP) 4.5 climate scenario.<sup>41</sup> Transition risk and opportunity metrics include Scope 1 CO<sub>2</sub> emissions per capita, a proprietary State Climate Landscape Score, Climate Adaptation Plans and a measure for sustainable transit operations.

An issuer’s exposure to physical risk and/or transition risk will likely reduce the sustainability score. Please see Figure 8 for a sample summary of our scoring process. As noted, our sustainability score ranges from 0 to 100.

An analyst will compare the adjusted score of 52 to peer cities, complete the appropriate qualitative research, and consider relevant engagement takeaways before assigning a sustainability rating for this issuer.

FIGURE 8: EXAMPLE - SCORE SUMMARY FOR A CITY IN THE NORTHEASTERN UNITED STATES (FOR ILLUSTRATIVE PURPOSES ONLY)

Category	Points (Scale of 1-100)
Unadjusted Sustainability Score	65
Climate-Related Adjustments	
Physical Risk	-12
Transition Risk	-1
Adjusted Sustainability Score	52.0



41. RCPs refers to the concentration of GHG in the Earth’s atmosphere by 2100 measured by total radiative forcing, versus pre-industrial levels. Met Office. (2018). *UKCPI8 Guidance: Representative Comprehensive Pathways*; Total radiative forcing is defined as the difference between incoming and outgoing solar radiation at the top of the atmosphere. The level of radiative forcing is quantified in the unit of watts-per-meter squared (W/m2). Therefore, RCP 4.5 is the climate scenario that projects 4.5 W/m2 warming by 2100 versus the pre-industrial period, which aligns with the 1.5°C Paris Agreement pathway. Emmanuel, K. (2024, February). *Radiative Forcing*. MIT Climate Portal.





# Breckinridge’s Municipal Investment Strategies That Prioritize Climate Considerations

## Sustainable Tax-Efficient Strategies

Breckinridge considers sustainability factors, including climate risks, across our municipal bond investments. Our Sustainable Tax-Efficient Strategies are investment grade municipal bond portfolios that specifically emphasize sustainable investments (including climate considerations), while seeking to preserve capital and maximize after-tax income, as directed by clients. The strategy employs active management, bottom-up research and proactive portfolio positioning. It also includes portfolio-level scoring of climate risk, new in 2025 ([page 14](#)).

## An Option for Mission-Aligned Clients: Climate Vulnerability Customization

In 2023, Breckinridge launched a Climate Vulnerability Customization for tax-efficient portfolios. It was developed to accommodate client interest in values-based investment strategies.

The customization is for investors who wish to direct capital to communities that are vulnerable to physical climate risk and must manage resource capacity constraints due to lower income levels or higher infrastructure needs. We determine elevated physical climate risk exposure using data from ICE.<sup>42</sup>

In our conceptual framework, climate-exposed communities with heightened vulnerability can come in two forms. First, communities with lower wealth profiles may be less able to combat the financial burdens of climate hazards.<sup>43,44</sup> These communities are more likely to face tax- or rate-based stresses to fund climate-related infrastructure repairs or upgrades. Second, communities that are physically old, including those with aging housing stock, roads, bridges and water systems may be more likely to experience infrastructure stress from climate impacts.<sup>45,46</sup> For example, many locations in the Great Lakes and Northeast must manage combined sewer overflows.<sup>47</sup> These events result from antiquated stormwater infrastructure that was not built for modern-day hydrologic and flood events.<sup>48</sup> Some communities face both challenges: low wealth and aging infrastructure.

Climate vulnerability is grounded in the reality that some communities are more vulnerable than others when it comes to addressing the impacts of climate change. It recognizes the intersection of climate exposure, fiscal capacity, and infrastructure status. Figure 9 summarizes our approach to portfolio construction.

More information about our climate vulnerabilities customization can be found in our sustainable investing newsletter article available [here](#).

FIGURE 9: PORTFOLIO CONSTRUCTION APPROACH FOR THE CLIMATE VULNERABILITY CUSTOMIZATION



\*Metrics are derived from a third-party data provider, Intercontinental Exchange (ICE). Socioeconomic metrics originate from Census data and climate data are sourced from ICE's internal analysis, as of 3/31/25.

42. Breckinridge evaluates municipal issuers for climate risks before they are considered for a climate vulnerability customization. As a result, issuers with outlier climate risks are likely ineligible due to our general investment standards.  
43. Many disadvantaged communities currently bear the brunt of climate-induced health risks from extreme heat, poor air quality, flooding, extreme weather events, and vector borne diseases (*USGCRP, 2018, Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*).  
44. *USEPA, 2022, Climate Change Impacts on the Built Environment*.  
45. No person or place is entirely immune to climate risks, which aging infrastructure magnifies (*Chester et al., 2018, Rethinking Infrastructure in an Era of Unprecedented Weather Events, Issues in Science and Technology 34, no. 2*).  
46. ORNL, 2012. *Climate Change and Infrastructure, Urban Systems, and Vulnerabilities, Technical Report for the U.S. Department of Energy in Support of the National Climate Assessment*.  
47. A combined sewer overflow event can occur when a system that carries both water and sewage is overwhelmed by heavy rainfall. More information can be found [here](#).  
48. USEPA, 2004. *Report to Congress: Impacts and Control of CSOs and SSOs*.





# Corporate Bonds

## INTRODUCTION

Climate change poses a challenge for most companies. For example, in its Climate Risk Technical Bulletin, the Sustainability Accounting Standards Board (SASB), which is part of the International Sustainability Standards Board (ISSB), determined that companies in 70 of 77 sectors are exposed to physical- and/or transition-related climate risks.<sup>49</sup> SASB also noted that opportunities stemming from actions that address climate change could produce a net gain to the global economy of \$26 trillion through 2030. Like SASB’s analysis, Breckinridge’s consideration of physical and transition risks reflects the unique nature of each corporate sector.

Physical risks are highly important for electric utilities or property and casualty insurers operating in regions where wildfires, hurricanes, and other storms can result in extensive damage. Force majeure clauses and reinsurance may mitigate losses in certain cases. For other sectors, such as services and manufacturing, physical risks are more manageable. Many manufacturers have extensive supply chains and operations. When faced with a raw material shortage caused by drought, the companies we invest in have been shown to have flexible sourcing arrangements. They can generally shift to new suppliers when necessary. Overall, Breckinridge tends to not be widely exposed to physical risk, as our investable universe is skewed to multinational industrials and service-based companies (e.g. financials, technology) or companies that benefit from geographically diverse production and revenue footprints.

However, some companies we follow and invest in, especially those with high carbon-emitting businesses, are beginning to experience challenges associated with a global economy transitioning from carbon-based energy. An example is the diesel truck engine industry. Demand from mining companies for lower emission hauling trucks is putting pressure on the vehicle manufacturers to move away from diesel combustion engines. Daily route-based businesses such as a waste disposal provider can benefit from lower fuel costs by capturing landfill methane and using it to power trucks.

Transportation companies need electric trucks to the extent that customers are seeking to reduce their Scope 3 emissions (or known as Category 4, transportation and distribution in upstream activities). Companies that are slow to invest in alternative forms of power, such as electric or hydrogen-based engines, may lose market share to competitors over time that are more aggressively pursuing a low-carbon strategy.

Credit rating agencies have called attention to transition risks and their potential impact on corporate credit quality. A November 2021 Moody’s Investors Service report analyzed the transition preparedness of carbon intensive industries, including utilities, automotives, and cement. Moody’s said that “the shift to a net zero global economy is well underway and accelerating.” It contends that “early action” by companies in these sectors during the 2020s would reduce their probability of default through 2050 by 50%. Companies that delay their climate mitigation activities into the 2030s increase their probability of default by 10% through 2050.<sup>50</sup>

Fitch Ratings Inc. reviewed the potential for climate-related downgrades for 715 corporates across all sectors and regions. Fitch found that 22% of these companies have elevated climate risk and are exposed to negative rating action of one or more climate-related downgrades by 2035. Importantly, downgrades may be preventable if management teams take necessary corrective mitigation actions. Additionally, over half of the companies vulnerable to climate-related downgrades are investment grade. The at-risk sectors identified by Fitch include oil and gas, building materials and industrials, which are all increasingly threatened by emissions reduction regulations.<sup>51</sup>

“Our sustainable integration methodology combines a review of qualitative sustainability considerations, a quantitative assessment of sustainability and climate transition risk data, and direct issuer engagement.”

49. SASB Standards, *Climate Risk Technical Bulletin, Updated August 2023*. SASB Standards enable organizations to provide industry-based disclosures about sustainability-related risks and opportunities that could reasonably be expected to affect the entity’s cash flows, access to finance or cost of capital over the short, medium or long term. As of August 2022, the International Sustainability Standards Board (ISSB) of the IFRS Foundation assumed responsibility for the SASB Standards. Breckinridge has been a longstanding supporter of SASB since 2012.

50. “Ready or not? Sector Performance in a Zero-Carbon World,” *Moody’s*, November 2021.

51. “Over Half of Corporates Facing Climate-Related Downgrades by 2035 Are Investment Grade,” *Fitch Ratings*, October 24, 2023





STRATEGY  
& RISK  
MANAGEMENT

When assessing a corporate security for creditworthiness, Breckinridge’s analysts are responsible for performing both fundamental and sustainable research. Our analysts evaluate an issuer’s business profile, market position and competitive strengths and weaknesses alongside traditional credit measures, such as margins, leverage and cash flow.

As part of their sustainability research, analysts perform sector-specific analysis of material sustainable risk factors. Climate-related issues, especially transition risks, are an integral component of this research. Breckinridge believes that transition risks are typically not adequately analyzed or priced in corporate bond investments, and that the financial materiality of these threats will increase over time. We believe companies that are seeking to reduce their emissions by improving efficiencies and securing renewable energy are positioning themselves to thrive over the long term. As climate change intensifies, we believe companies that are less prepared, ill-equipped, or behind the transition curve will become more exposed to potential operational, regulatory and reputational risks. Over time, these challenges could threaten profits, growth and future solvency.

Our sustainable integration methodology combines a review of qualitative sustainability considerations, a quantitative assessment of sustainability and climate transition risk data, and direct issuer engagement.

Our qualitative analysis consists of an in-depth review of a company’s sustainability disclosure, with an emphasis on material issues for the company or sector. Our quantitative process has two components: 1) sector-specific models that assess a company’s sustainability performance, and 2) a corporate climate transition risk framework. The sector-specific models generate a sustainability score based on a 0- to 100-point scale, with higher scores indicative of companies with lower total sustainability risks. Our corporate transition risk framework consists of metrics that assess a company’s: 1) cross-sector exposure to climate change and risks, 2) track record of emissions reduction, 3) climate goals and pathway alignment, and 4) climate governance quality and disclosure. For more information, please see the sidebar article “Corporate Transition Risk Framework”.

Finally, our analysts assign sustainability ratings to companies that capture the results of the qualitative and quantitative analysis and insights gained from our engagement discussions with management. The rating summarizes a company’s exposure to and management of sustainable risks and opportunities and is incorporated into the issuer’s overall credit rating.

METRICS  
& TARGETS

**Metrics Used to Assess Climate Risks**

As mentioned above, Breckinridge uses climate data in our sustainability and transition risk models. For our sustainability scoring models, we source climate data from MSCI Inc. and company-reported information from Bloomberg L.P. Metrics used to assess climate risk include Scope 1 and Scope 2 carbon dioxide equivalent emissions relative to a company’s allotted carbon budget and whether a company has any climate change policies.

The data used in the corporate transition risk framework are sourced from MSCI, which uses the Network for Greening the Financial System (NGFS) Net Zero 2050 scenario. This scenario is aligned with a 1.5°C temperature in the year 2100 versus the pre-industrial average temperatures. Therefore, our corporate holdings are modeled against this NGFS scenario. Examples of datapoints include the projected emissions pathway for a company, assuming its pledged climate targets are met; whether the company has set a net zero target; and if a company discloses Scope 3 emissions.

**Financed Emissions**

Breckinridge calculates the financed emissions in our corporate bond holdings to assess the overall firm-level exposure to climate transition risks.<sup>52</sup> We also use this measure on a portfolio-by-portfolio basis in managing the financed emissions from our clients’ portfolios, as a feature of our Climate Transition Customization (please see the next section). For fiscal year 2024, the financed emissions intensity across all of the corporate bond holdings Breckinridge manages on behalf of clients was 43.5 tons of carbon dioxide equivalent (CO<sub>2</sub>e) per \$1 million invested.

52. *The Partnership for Carbon Accounting Financials* (PCAF) defines financed emissions as the GHG emissions associated with a financial institution’s investments and loans. Breckinridge follows the PCAF’s guidance for calculating financed emissions for a investee company, which are then aggregated to measure the emissions for the corporate bond holdings in a portfolio.

**Corporate Transition Risk Framework**

Breckinridge’s internally developed, proprietary corporate transition risk framework is a natural extension of our sustainable factor integration process, and is grounded in financial materiality. We focus on high-emitting sectors, with a process that incorporates both a quantitative transition risk score and qualitative analysis.

Using the framework, our security analysts can assess exposure to climate risks, track emissions reductions, evaluate the climate-related goals of a company and their strategies to achieve the goals, and the quality of a company’s climate governance approach. The analyst concludes the research by grading the company for its progress on managing transition risk. The assessment categories range from not aligned to achieving a net zero business model and are shown in Figure 10.

**FIGURE 10: CONTINUUM OF NET ZERO CATEGORIES**







# Breckinridge’s Multi-Sector Investment Strategies That Prioritize Climate Considerations

## Sustainable Multi-Sector Strategies

Breckinridge considers sustainability factors, including climate risks, across our corporate bond investments. Our Sustainable Multi-Sector Strategies are investment grade bond portfolios that specifically emphasize sustainable investments (including climate considerations), while seeking to preserve capital and maximize after-tax income, as directed by clients. The strategies employ active management, bottom-up research and proactive portfolio positioning.

## Fossil Fuel Free

Breckinridge’s Fossil Fuel-Free Customization can be applied to our sector-focused and multi-sector strategies and leverages our expertise in tailoring portfolio composition to meet specific investment objectives. The customization excludes investment in companies with reserves in oil, natural gas, or coal; potential emissions from oil, natural gas, or coal; and revenues derived from thermal coal. These corporate screens are defined by Breckinridge’s investment team and utilize MSCI’s screening tools. The customization also excludes the municipal electric utility sector.

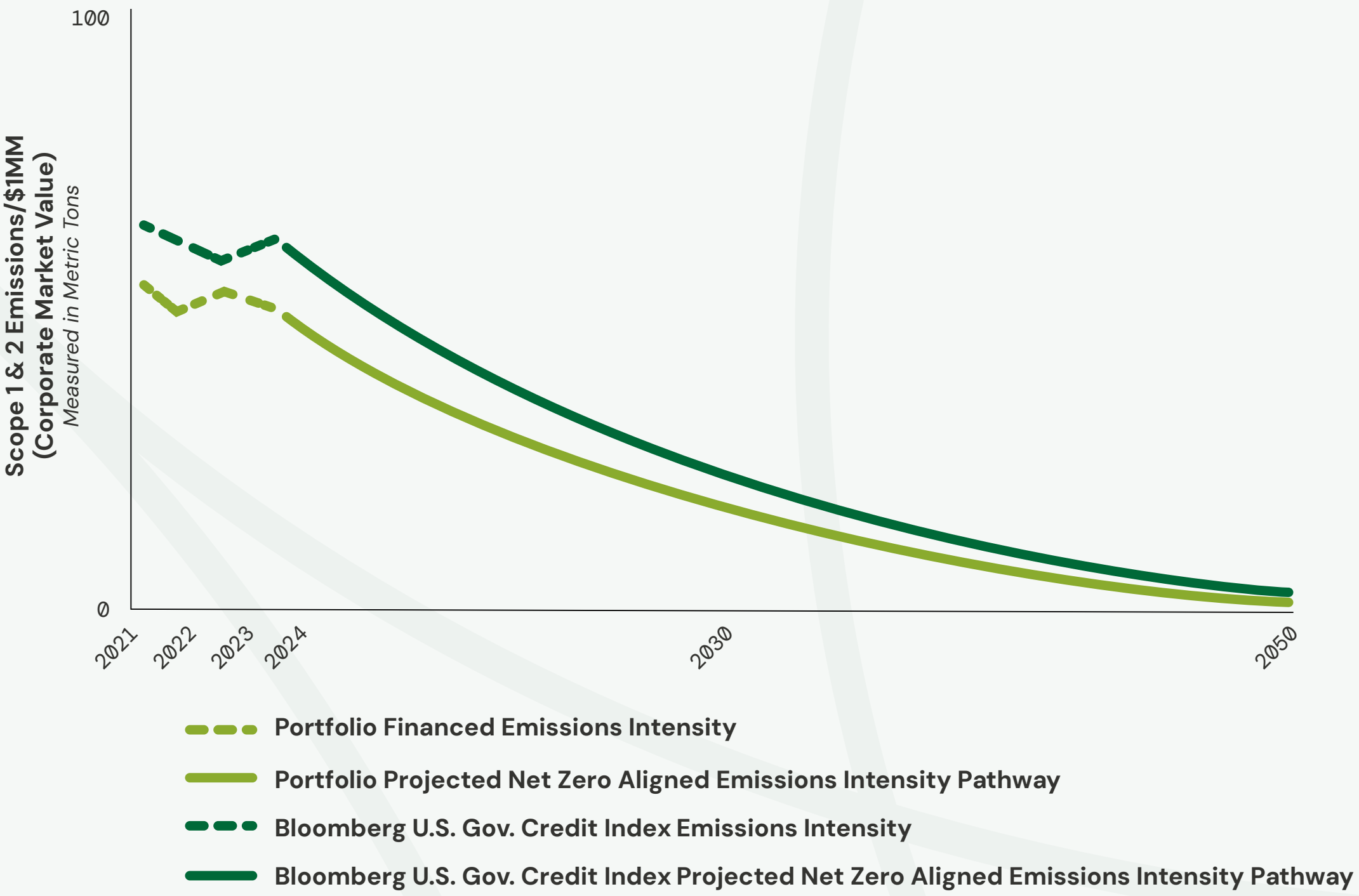
## Climate Transition Customization

Leveraging our corporate transition risk framework, and our analysts’ subject matter expertise within their coverage sectors, Breckinridge launched a Climate Transition Customization in 2023. The Climate Transition Customization is for investors interested in reducing their financed emissions and/or committed to net zero pathway, and who wish to construct their portfolios in alignment with these goals.

The customization can be applied to corporate holdings for portfolios in multi-sector strategies and leverages our expertise in tailoring portfolio composition to meet specific investment objectives. The customization seeks to achieve net zero financed emissions intensity (as defined as Scope 1 & 2 Emissions/Portfolio assets under management (AUM) in millions) by 2050, while remaining below the required net zero aligned emissions intensity pathway of the respective index. Net zero is defined as the state at which the rate of emissions produced are in balance with the rate at which they are being removed from the atmosphere. The customization prioritizes investment in companies that are achieving or pursuing absolute emissions reduction strategies.

Figure 11 provides an illustrative example of Breckinridge’s approach to managing a customized climate transition portfolio. The graphic illustrates a comparison between the emissions intensity of an illustrative customized climate transition portfolio managed against the Bloomberg U.S. Government Credit Index and the Index’s emissions intensity, along with net zero aligned emissions intensity pathways through 2050.

FIGURE 11: CLIMATE TRANSITION CUSTOMIZATION: ILLUSTRATIVE PORTFOLIO EMISSIONS & INDEX EMISSIONS



For illustrative purposes only. Not intended to represent an actual portfolio. The dotted lines are intended to illustrate a comparison between the historical emissions intensity of the portfolio and the Index from 2021 to 2024. For 2024 onward, the comparison is based on the projected emissions intensity pathway through 2050. Actual portfolios will exhibit different emissions intensities than are pictured here.





# Agency MBS

## INTRODUCTION

MBS are bundles of home loans bought from originating entities and wrapped into a security offering. MBS investors receive periodic payments of both principal and interest that are passed through from the borrowers of the underlying mortgages to the bondholder. Breckinridge believes that the quality and performance of MBS needs to be assessed based on the underlying mortgage loans or assets in the pool.

Unlike municipal and corporate bonds, agency MBS generally have lower credit risk thanks to explicit or implicit guarantees from government-sponsored entities (GSEs) such as the Government National Mortgage Association (Ginnie Mae), Federal National Mortgage Association (Fannie Mae), and Federal Home Loan Mortgage Corporation (Freddie Mac). Prepayment risk is a key risk for agency MBS because it can affect the timing of cash flows, which drives realized returns from the underlying pool of mortgages.

As a result, our process incorporates analysis of how natural disasters such as flooding, water stress, heat stress and hurricanes accelerate mortgage prepayment rates, which can improve our insight into MBS risks. A natural disaster can accelerate the principal prepayment of mortgages in the affected area, as victims qualify for mortgage relief. Therefore, we think natural disasters impact broad prepayment trends, altering cash flows which may impact investor returns.

## STRATEGY

To better understand prepayment risk in MBS, members of our investment team analyzed the buyout policies of GSEs as they related to the hurricanes that hit the states of Florida and Texas in 2017. The team also researched the impact that these events historically had on mortgage prepayment speeds. Breckinridge compared prepayment speeds six to twelve months after the occurrence of a natural disaster in various geographic regions against the national average of prepayment speeds over the same time period. Our research isolated the occurrence and effect on prepayment speeds of natural disaster-related buyouts.

Using these data, we developed a methodology to adjust the annualized percentage of a mortgage pool expected to be prepaid above and beyond scheduled amortization in a year, also known as the Conditional Prepayment Rates (CPR). The adjustment is based on the exposure to climate-related risk factors based on the geographic composition of the underlying loans. We leveraged our local government sustainability analysis, which uses data purchased from a climate research consultant to create the climate risk score at a U.S. state level.







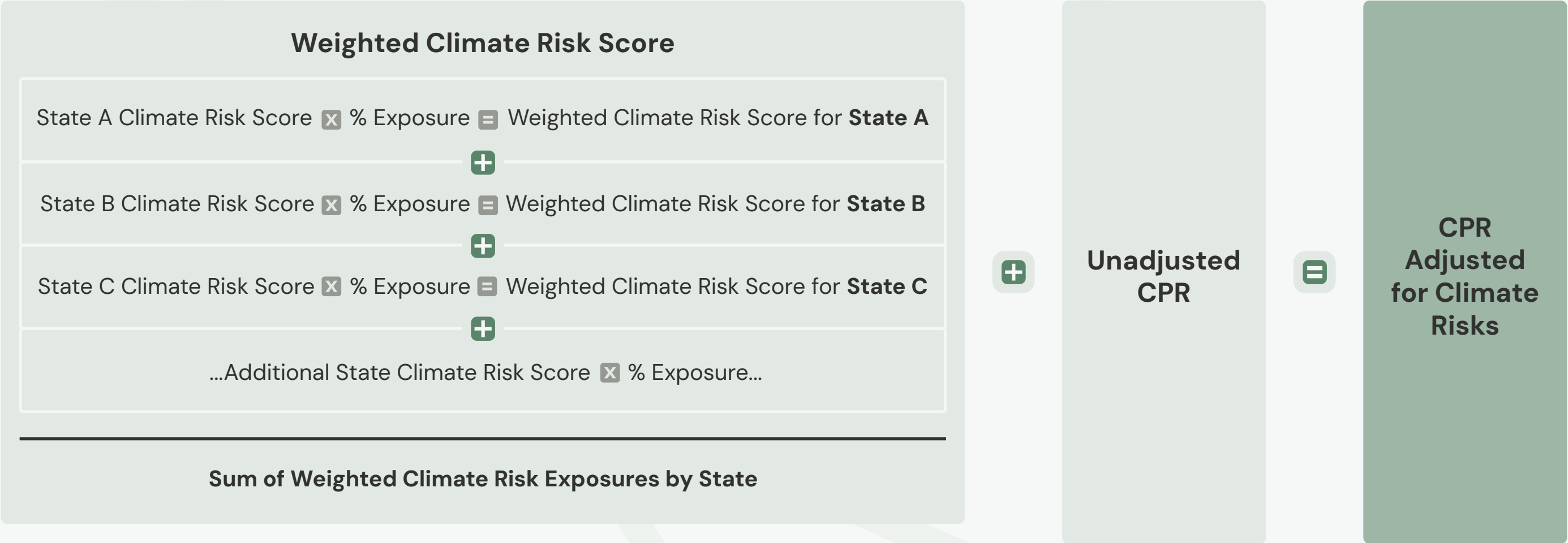
RISK  
MANAGEMENT  
& METRICS

We assess and assign a climate risk score by the geographic composition of the underlying mortgages to generate an overall climate-risk score at the security level. Unlike our process for corporates and municipals, this process does not produce an issuer-level sustainability rating.

The climate risk score is used to adjust the CPR for each security that we evaluate. By integrating the climate risk score, we change the relative value assessment for all MBS considered for investment through an increase of the projected CPR. To illustrate this process, we provide a hypothetical example in Figure 12. The methodology described here and summarized in Figure 12 also applies to our purchase of agency MBS.

Therefore, our sustainability evaluation of MBS emphasizes climate risk, its impact on prepayment speeds and therefore, relative value. A challenge to assessing climate risks for MBS is lack of disclosure. For privacy reasons, the GSEs decided to stop disclosing the location of the homes that back the mortgages within the pool, except for the state. As a result, an investor is unable to determine if a home for an underlying mortgage is located on the coast, where it may be subject to flooding, or in an inland region exposed to other climate change impacts.

FIGURE 12: HYPOTHETICAL EXAMPLE OF MBS CLIMATE RISK ANALYSIS



For illustrative purposes only. It is not intended to represent an investment for any portfolio or strategy.





# Non-Agency CMBS

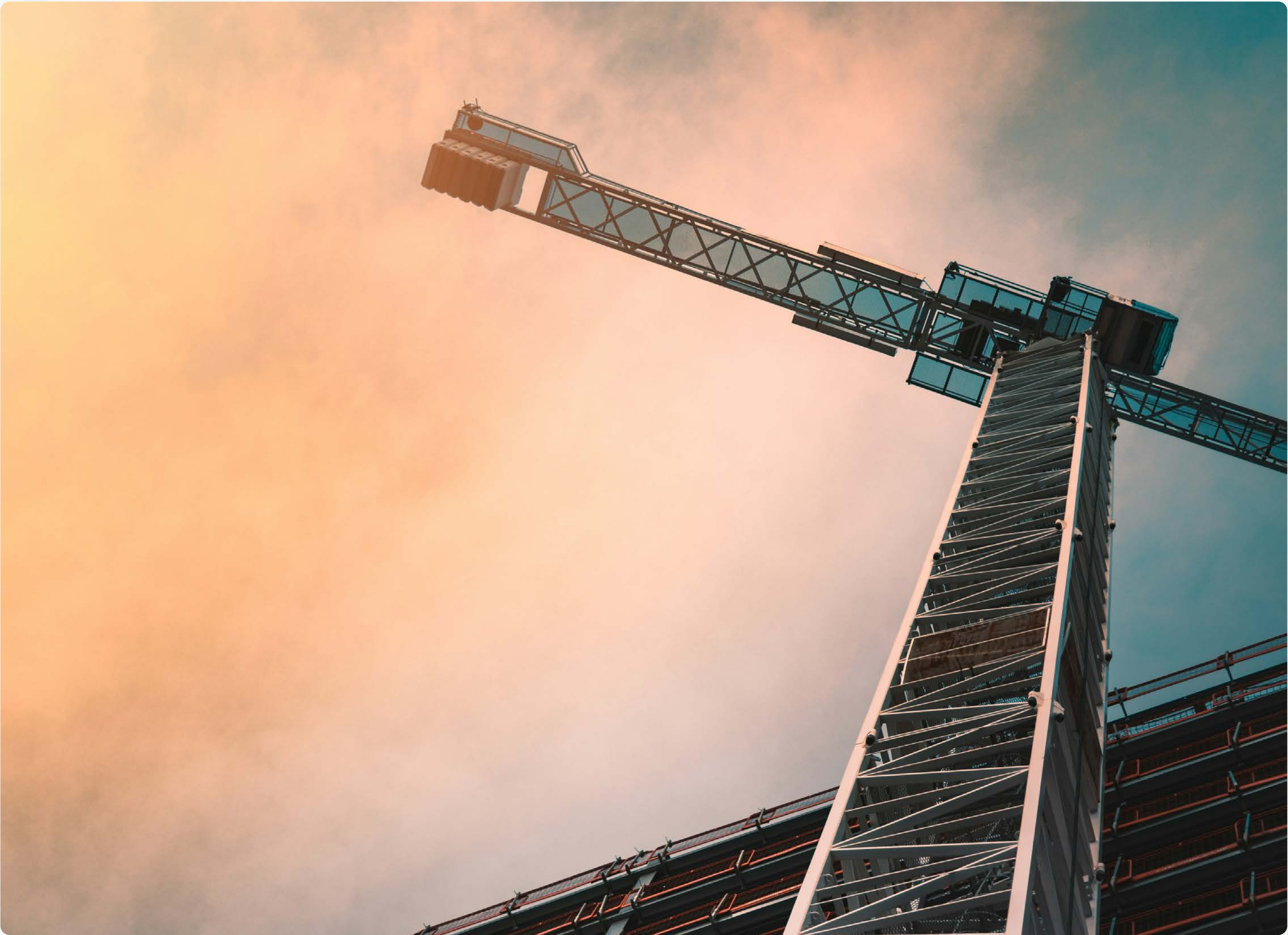
## INTRODUCTION

A commercial MBS (CMBS) is a type of security that is backed by a pool of commercial real estate loans and offered for investment in the secondary market. Conduit CMBS typically include 50 to 60 underlying commercial real estate loans. There can be high levels of diversification among the underlying loans, even within CMBS from the same issuer. Breckinridge utilizes a research framework that supports climate risk assessments for underlying loans comprising a conduit CMBS.

## STRATEGY, RISK MANAGEMENT, & METRICS & TARGETS

Breckinridge’s CMBS research framework takes a climate-focused approach, considering physical climate risks to the properties securing underlying loans, such as hurricane, wildfire and flooding.

The framework’s regional lens employs collateral mapping to geolocate properties. Climate and loan data, obtained from third parties, are integrated into the model. The framework enables analysis of the average total climate exposure, weighted based on the size of each underlying loan, to generate a comprehensive score at the deal level.







# ABS

INTRODUCTION	ABS are fixed income investments backed by pools of auto, credit card, small business, student loans, and other types of securities. To create the ABS, loans are transferred from the institution's balance sheet to a special purpose entity, which will hold the loans, act as trustee, and often service the loans. Breckinridge assesses the creditworthiness of the loan pool before investing in an ABS security. We analyze traditional credit measures that include but are not limited to debt-to-income and loan-to-value ratios, default and delinquency data, excess spreads and FICO scores of the underlying borrowers.	STRATEGY, RISK MANAGEMENT, & METRICS	<p>Breckinridge's sustainable risk factor framework for ABS uses over 25 sector-specific metrics, insights from third-party data providers, our analysts' qualitative assessment, and a sector-level risk evaluation. The climate data points in the framework include whether the issuer has a climate change policy, a renewable electricity target, and whether it discusses climate risks in its corporate disclosure.</p> <p>We continue to look for ways to incorporate additional sustainability considerations at the security level. However, data availability remains an issue. Sustainability information that would be helpful for analyzing the loan pool includes the location of the asset underlying a specific loan and the credit score of the borrower. This information, however, is unavailable due in part to understandable privacy concerns among regulators. Therefore, due to the lack of sustainability information at the security level, our sustainable research approach for ABS is focused on the issuer.</p>
--------------	--	--------------------------------------	--

# Sovereigns

INTRODUCTION	Sovereign borrowers issue dollar-denominated debt to finance deficits, fund a mix of public needs, and deepen their access to capital beyond their own borders. Breckinridge's analysis of sovereign securities examines several credit issues including the breadth and vitality of the economy, the stability of the government, and the capacity for debt repayment. The assessment includes an evaluation of material sustainability factors.	STRATEGY, RISK MANAGEMENT, & METRICS	<p>Breckinridge anchors its sovereign sustainable research approach in the Social Progress Index (SPI). SPI is a holistic framework for benchmarking that includes goals widely shared across cultures and governments. At client direction, the SPI can also be used to benchmark progress toward the Sustainable Development Goals (SDGs), a collection of goals which are meant to reduce worldwide poverty while confronting challenges of inequality and climate change. Finally, SPI's indicators are scalable, and they are based on widely understood and available metrics.</p> <p>The methodology employs quantitative metrics provided via the SPI and other data sources. Climate data assessed in the framework include usage of clean fuels and technology for cooking, biome protection, and absolute GHG emissions. We also examine physical climate hazard exposure.</p>
--------------	---	--------------------------------------	---





# Engagement

Breckinridge's sustainability research involves independent engagement discussions with issuers. We take the opportunity to discuss sustainability trends, including climate topics. We also convey our interest, as an investor, in monitoring the impacts of sustainability considerations, including climate change, on municipal and corporate credit quality. Findings from these conversations offer additional insights into sector sustainability themes and trends. Our intention of engaging independently with companies, municipalities and other issuers is to:

- Deepen our understanding of credit issues and material sustainability risks and opportunities for issuers, industries and sectors;
- Provide an idea generation platform for our investment team; and
- Encourage disclosure of material sustainability factors and/or progress in managing material sustainability risks.

An important area of inquiry has been a municipality's or company's management of climate risks. For example, in 2024 we spoke with representatives of leading firms in the Real Estate Investment Trust (REIT) sector about their efforts to understand and manage their Scope 3 emissions, including the embodied carbon in construction materials. We also engaged with officials from coastal cities about how building codes may reflect the hazards of sea level rise and saltwater intrusion.

Importantly, engagement with municipalities differs from our corporate sustainability discussions, due primarily to the size of the U.S. municipal bond market: there are an estimated 50,000 issuers, compared to 908 investment grade corporate issuers in the Bloomberg U.S. Aggregate Bond Index (Agg Index).<sup>53</sup> As a result, engagements with company management teams are more likely to yield useful takeaways about an individual company under review for investment, given our broad research coverage of the market. For municipal bonds, the investable universe is 70x larger than the corporate exposure in the Agg Index. Due to the significantly larger size of the municipal market, our engagement findings generally offer additional insights on sector-level sustainability themes or issues that may be pertinent to our analysis.

More information about our engagement program and insights gained from the conversations can be found in our [2024 Engagement & Proxy Voting Report](#).

53. For statistics on the municipal bond market, please see [here](#). The Bloomberg U.S. Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers. The U.S. Corporate Index is a component of the U.S. Credit and U.S. Aggregate Indices, and provided the necessary inclusion rules are met, U.S. Corporate Index securities also contribute to the multi-currency Global Aggregate Index. The index was launched in July 1973, with index history backfilled to January 1, 1973.





# Investing in Climate Solutions

Climate solution investing is a form of thematic investing. As defined by the CFA Institute, thematic investing involves “selecting assets to access specific trends.”<sup>54</sup> Climate solution investing directs capital in two ways:

- A) To products and services that contribute to net zero aligned emissions reductions; or
- B) To substantially support climate adaptation.<sup>55</sup>

*“We believe Breckinridge’s active role in the bond market makes us well positioned to finance adaptation as a climate solution.”*



<sup>54</sup>. <https://rpc.cfainstitute.org/sites/default/files/-/media/documents/article/industry-research/definitions-for-responsible-investment-approaches.pdf>

<sup>55</sup>. IIGCC Investing in Climate Solutions Listed Equity Fixed Income Nov2023.pdf





As an active investor in the high grade fixed income space, Breckinridge is familiar with the types of projects financed by bonds. The purpose of the bonds can vary, with some used to fund sustainability objectives. It has been our experience that the number of bonds issued to finance climate solutions is quite limited.

A key reason is the nature of corporate bond issuance. It is customary for companies to issue bonds with the use of proceeds defined simply as for “general corporate purposes.” In addition, there are few opportunities to invest in climate-focused, single purpose entities in the high grade corporate bond market. In general, climate-focused companies do not issue public debt or lack the necessary credit profile to be included in the relevant indexes.

At times, we invest in green bonds that finance climate mitigation projects. They included securities from corporates, municipalities, as well as MBS and ABS issuers. This type of sustainable issuance in the U.S. has waned. We comment on the sustainable bond market in the sidebar article “A Note about the Sustainable Bond Market.”

**Adaptation**

We believe Breckinridge’s active role in the municipal bond market makes us well positioned to finance adaptation as a climate solution. U.S. municipalities are particularly vulnerable to physical climate risk. While a company can shift its operations in the face of a climate peril, a city or water system is unable to easily move.

Breckinridge has identified a growing number of adaptation investments across the municipal market, particularly in water utilities that are responding to precipitation extremes such as flood or water scarcity challenges. These include projects to reduce sewer overflows in coastal areas and expand water supply in drought-prone regions, often funded through a combination of municipal bonds, federal programs and state revolving funds.

It is expected that government officials will account for local climate threats through adaptation planning. We anticipate borrowing for adaptation-related projects will put upward pressure on total municipal bond market issuance in the coming years.

56. ICMA administers the green, social, and sustainability bond principles. The green bond principles are available [here](#).

# A Note about the Sustainable Bond Market

Breckinridge has actively participated in the sustainable bond market for over a decade. Our first purchase took place in February 2013, when Breckinridge invested in a \$1 billion green bond issue from the International Finance Corporation. We also contributed to the growth of the market by providing feedback to issuers on potential bond issuance and speaking about sustainable bonds at industry conferences.

An important governance feature of the sustainable bond market is the voluntary process guidelines.<sup>56</sup> Issuers committed to best practices use the guidelines to structure their transactions. The key element of the principles is the transparency related to the use of proceeds. Clear definition of the types of projects financed by a sustainable bond is considered the cornerstone of the issuance. Related to climate, eligible green bond projects include renewable energy and energy efficiency.

Breckinridge and clients in our sustainable strategies value this additional disclosure and the intentional use of proceeds. However, sustainable bond issuance, especially from corporates, in the U.S. has been on the decline over the past few years. This has limited the opportunity to clearly and directly invest in climate solutions in high grade U.S. dollar bonds.

Going forward, we will continue to monitor the market and selectively invest in a sustainable bond when the security meets our portfolio management and research standards and requirements.





# Conclusion

Examining sustainable risk factors in our investment analysis has been a hallmark of Breckinridge's research process for almost fifteen years. We believe that looking beyond traditional financial data with sustainable factor integration techniques and analysis is a critical part of robust research. It enables us to gain deeper insight into the underlying risk and value of an investment.

Climate risk can often be considered the most material of any sustainable factor. It is both pervasive and unavoidable. It exists today and will likely worsen over time, particularly if global progress on reducing GHG emissions is postponed. In such a scenario, we believe climate risk analysis, and investing in solutions, will become even more important over time.

*“We believe that looking beyond traditional financial data with sustainable factor integration techniques and analysis is a critical part of robust research.”*







# DISCLOSURES

**The content is intended for investment professionals and institutional investors.**

All information and opinions are current as of the dates indicated and are subject to change. Breckinridge believes the data provided by unaffiliated third parties to be reliable but investors should conduct their own independent verification prior to use. Some economic and market conditions contained herein have been obtained from published sources and/or prepared by third parties, and in certain cases have not been updated through the date hereof. There is no assurance that any estimate, target, projection or forward-looking statement (collectively, “estimates”) included in this material will be accurate or prove to be profitable; actual results may differ substantially. Breckinridge estimates are based on Breckinridge’s research, analysis and assumptions. Other events that were not considered in formulating such projections could occur and may significantly affect the outcome, returns or performance. Not all securities or issuers mentioned represent holdings in client portfolios. Some securities have been provided for illustrative purposes only and should not be construed as investment recommendations. Any illustrative examples are intended to demonstrate Breckinridge’s research and investment process.

**General Performance Disclosures**

Past performance is not indicative of future results. Breckinridge makes no assurances, warranties or representations that any strategies described herein will meet their investment objectives or incur any profits. Performance results for Breckinridge’s investment strategies include the reinvestment of interest and any other earnings, but do not reflect any brokerage or trading costs a client would have paid. Results may not reflect the impact that any material market or economic factors would have had on the accounts during the time period. Due to differences in client restrictions, objectives, cash flows, and other such factors, individual client account performance may differ substantially from the performance presented. Unless otherwise indicated, net Breckinridge performance results reflect the maximum advisory fee (35 bps) charged on an account. Actual client advisory fees may differ. Client returns will be reduced by the advisory fees and any other expenses incurred in the management of their accounts. For example, an advisory fee of 1 percent compounded over a 10-year period would reduce a 10 percent return to a 9 percent annual return. Additional information on fees can be found in Breckinridge’s Form ADV Part 2A.

**Investment Risk Considerations**

There is no guarantee that the strategies or approaches discussed will achieve their objectives, lower volatility or be profitable. All investments involve risk, including loss of principal. Diversification cannot assure a profit or protect against loss. No investment or risk management strategy can guarantee positive results or risk elimination in any market. All investments involve risks, including the loss of principal. No investment or risk management strategy, including diversification, can guarantee positive results, a profit, or risk elimination or protection in any market. Periods of elevated market volatility can significantly impact the value of securities. Investors should consult with their advisors to understand how these risks may affect their portfolios and to develop a strategy that aligns with their financial goals and risk tolerances. Fixed income investments have varying degrees of credit risk, interest rate risk, default risk, and prepayment and extension risk. In general, bond prices rise when interest rates fall and vice versa. This effect is usually more pronounced for longer-term securities. Income from municipal bonds can be declared taxable because of unfavorable changes in tax laws, adverse interpretations by the IRS or state tax authorities, or noncompliant conduct of a bond issuer. Equity investments are volatile and can decline significantly in response to investor reception of the issuer, market, economic, industry, political, regulatory or other conditions.

**Sustainable Investment Risks**

There is no guarantee that integrating sustainability analysis will improve risk-adjusted returns, lower portfolio volatility over any specific time period, or outperform the broader market or other strategies that do not utilize such analysis when selecting investments. The consideration of sustainability factors may limit investment opportunities available to a portfolio. When considering sustainability factors, Breckinridge’s investment team will include those factors that they believe are material. However, the investment team may conclude that other attributes outweigh these considerations when making investment decisions. Breckinridge can change its sustainability analysis methodology at any time. Breckinridge’s sustainability analysis is based on third party data and Breckinridge analysts’ internal analysis. Analysts will review a variety of sources such as corporate sustainability reports, data subscriptions, and research reports to obtain available metrics for internally developed frameworks. Qualitative information is obtained from company reports, engagement discussion with corporate management teams, among others.

**Thematic Customization Risks**

Investments in thematic customizations are primarily focused on particular sectors and/or regions, which will subject the customizations to proportionately higher risk exposure of those sectors or regions. In addition, the investments held in thematic customizations may not meet the desired positive impact or become subject to negative publicity; these types of events may cause the customizations to have poor performance due to the concentration of assets. There is no assurance that the customizations or the strategies will meet their objectives. Net zero alignment and classifications are defined by Breckinridge and are subjective in nature. Although our classification methodology is informed by the Net Zero Investment Framework Implementation Guide as outlined by the Institutional Investors Group on Climate Change, it may not align with the methodology or definition used by other companies or advisors. Breckinridge uses the financed emissions methodology developed by the Partnership for Carbon Accounting Financials (PCAF) to track, monitor and allocate emissions. These differences should be considered when comparing the Climate Transition customization and standard strategies. Targets and goals for the Climate Transition customization can change over time and could differ from individual client portfolios. Breckinridge will continue to invest in companies with exposure to fossil fuels; however, we may adjust our exposure to these types of investments based on net zero alignment and classifications over time.

**Third Party Copyrights**

BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively “Bloomberg”). Bloomberg does not approve or endorse this material or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith. The S&P500 Index (“Index”) and associated data is a product of S&P Dow Jones Indices LLC, its affiliates and/or their licensors and has been licensed for use by Breckinridge. © 2025 S&P Dow Jones Indices LLC, its affiliates and/or their licensors. All rights reserved. Redistribution or reproduction in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. For more information on any of S&P Dow Jones Indices LLC’s indices please visit [www.spdji.com](http://www.spdji.com). S&P® is a registered trademark of Standard & Poor’s Financial Services LLC (“SPFS”) and Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC (“Dow Jones”). Neither S&P Dow Jones Indices LLC, SPFS, Dow Jones, their affiliates nor their licensors (“S&P DJI”) make any representation or warranty, express or implied, as to the ability of any index to accurately represent the asset class or market sector that it purports to represent and S&P DJI shall have no liability for any errors, omissions, or interruptions of any index or the data included therein. Copyright © 2025 Sustainalytics. All rights reserved. This publication contains information developed by Sustainalytics. Such information and data are proprietary of Sustainalytics and/or its third-party suppliers (Third-Party Data) and are provided for informational purposes only. They do not constitute an endorsement of any product or project, nor an investment advice and are not warranted to be complete, timely, accurate or suitable for a particular purpose. Their use is subject to conditions available at <https://www.sustainalytics.com/legal-disclaimers>.