Bloomberg Intelligence BI

# The Climate Economy

## 2025 Outlook

## $18.5 Trillion to Address Global Natural Disasters Adds Alpha Across Industries

Climate-related disasters have driven $18.5 trillion in global spending since 2000, spurring a significant wealth transfer across companies and industries. In the US, the costs are approaching $1 trillion a year, lifting revenue for companies focused on repair (Waste Management, Fastenal and Quanta Services) and resilience (Dycom Industries, Martin Marietta, Stantec and Jacobs Engineering). Low-emission leaders in steel (Steel Dynamics), cement (Heidelberg Materials), and oil and gas (EQT) may keep riding recent tailwinds, while US municipal bonds, REITs and private-asset owners could be challenged.

- **Climate Costs Are Rising:** US climate-related costs reached a record $955 billion over the 12 months through April and equated to 36% ($7.7 trillion) of US GDP growth this century, crowding out spending in other sectors.
- **Repair, Prepare and Low-Impact Firms Well-Placed**: Picking up after the last storm and preparing for the next one could boost sales of companies such as Aon, Home Depot and Assured Guaranty. Companies focused on CO2-efficient production in the oil and gas, power, airlines and materials sectors have bested higher-emitting peers.
- **Climate Recovery Costs to Detract From Consumer Discretionary:** The rising costs of disaster recovery and home insurance premiums, which have doubled since 2017, are crowding out consumer discretionary spending elsewhere in the economy and putting pressure on local governments to prioritize disaster repair over other infrastructure projects.

**Featured in This Report:** Bloomberg Intelligence analysis leverages an extensive suite of data available on the Terminal, including our proprietary **Climate Damages Tracker** (following monthly costs in 50 countries) and **Global Emissions Intensity Tracker** (500 firms across six industries), along with BI Carbon forecasts, Bloomberg's ESG scores and industry-level alpha analysis.

**June 16, 2025**

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**More detailed analysis and interactive graphics are available on the Bloomberg Terminal**

# Section 1. Executive Summary

**$18.5 Trillion**
Global spending on climate-related disasters since 2000

**$1.1 Trillion**
US federal disaster aid to state and local governments since 2005

**$955 Billion**
US climate-related costs in the past 12 months

## Climate Costs Shift Spending to Repair From Discretionary

Climate-related disasters are redistributing trillions of dollars in global spending away from the broader economy to pay for the costs of repairing the damage from the last fire, flood and storm and preparing for the next one. Climate-related spending in the US from insurance premiums, repairs and federal relief efforts reached a record high of $955 billion (3.2% of US GDP) in the 12 months through April, crowding out consumer discretionary spending and other infrastructure priorities. This shift in spending is providing tailwinds for companies focused on climate recovery like Waste Management, Quanta Services, Comfort Systems and Stantec and headwinds for firms forced to pay higher insurance costs (Kimco Realty Group) or fighting for fewer discretionary dollars (Gap and Signet Jewelers). Though global spending on climate resilience is climbing to meet the rising costs of disasters, efforts by the Trump administration to rein in the $1.1 trillion provided to local governments over the past 20 years will likely limit some communities' ability to return to trend growth without issuing additional general obligation debt.

### Key Research Topics

- **Climate Costs Rising:** Global costs related to climate exceed $18.5 trillion this century, with the US most affected in absolute terms and as a percentage of GDP.
- **Performance Boost:** Companies focused on Repair and Prepare have outperformed the S&P 500 Index by 7 percentage points annually over the past three years. Companies with the lowest emissions per unit of output beat their oil and gas, cement, steel, and airline peers by 8.8 points a year in the period.
- **Relief Spending Exceeds Muni Debt:** US disaster relief spending has totaled $1.1 trillion over the past 20 years, more than 50% greater than the $700 billion in outstanding US municipal bond general obligation debt. Efforts to make up for the loss of federal funding could flood the GO bond market.
- **Retail Risk to Catastrophe-Bond Returns:** Catastrophe bonds have generated better returns than US corporate debt but may face risks from a high participation rate from non-traditional investors.

### Performance and Valuation

The Bloomberg Prepare & Repair Aggregate Equal Weight Total Return Index (BPRAET) is scoped to include companies with exposure to US climate events across two distinct themes: prepare (including building products, risk management, consulting and storage) and repair (including HVAC and grid equipment, environmental services, insurance, engineering and emergency response). The theme has returned 6.2% this year as of June 3, outpacing the S&P 500's 1.8% increase. The theme's price-to-earnings ratio of 25.6x surpassed the benchmark's 23.3x.

# Section 2. Catalysts to Watch

## International Initiatives to Spur CO2 Emissions Reductions

Only one-third of the companies in the 494-member BI Carbon universe, which represents 55% of operational greenhouse gas (GHG) emissions from listed companies, aim to lower CO2 emissions in line with a 1.5-degrees Celsius scenario by 2030, indicating the trajectories of global reduction efforts.

### Critical Milestones:

- **November 2025:** United Nations COP 30 conference, by which time 176 countries are expected to complete their Nationally Determined Contributions (NDCs) commitments to cut emissions by 2035.
- **January 2026:** EU importers of goods covered by the Carbon Border Adjustment Mechanism (CBAM) will register with national authorities, declare the emissions embedded in their imports and capture more than 50% of the emissions in European Trading System (ETS) covered sectors, benefiting low-carbon US LNG producers like EQT.
- **January 2026:** Emissions-based fee compliance for shipping begins under the International Maritime Organization (IMO) MARPOL Annex VI amendments targeting a 40% reduction in emissions from a 2008 baseline, which could increase costs for companies like Mitsui OSK.
- **January 2027:** Second Phase of Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to become mandatory for most international flights and subject airlines to offsetting requirements.
- **2030:** China's Dual Carbon steel program aims to achieve peak carbon emissions for the steel sector, which accounts for 17% of Chinese GHG emissions, through efficiency improvements and production caps, pressuring iron ore producers that export to China like Anglo American, Rio Tinto and Vale.

# Section 3. Global Climate Costs

## US Dominates Disaster Damages at 41% of $6.7 Trillion

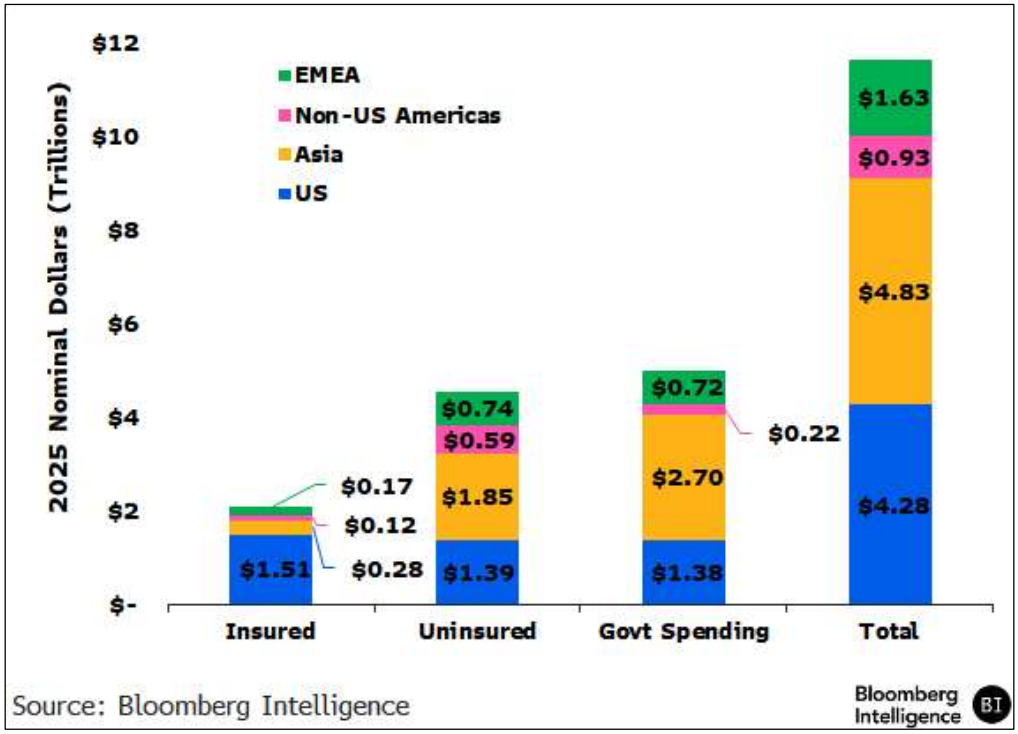
The US accounted for 41% of this century's $6.7 trillion in climate-related insured and uninsured property damages, in line with industry estimates, according to our tracking of fire, flood and storm costs in 50 countries. The country makes up 70% of insured losses and 30% of uninsured. China's government spends the most on climate-related costs, $2.1 trillion, followed by the US and India.

## 3.1 Asia Follows US With 32% of Total Losses

Our Climate Damages Tracker of insured and uninsured losses finds that the US made up $2.9 trillion of the global total, followed by Asia with $2.13 trillion (32%); Europe, the Middle East and Africa with $910 billion (14%); and the Americas excluding the US with $714 billion (11%). As shown in Figure 1, the US has logged $1.51 trillion in insured losses – the world's largest portion – and $1.39 trillion in uninsured losses.

Climate-related government spending – which includes grants for drainage, disaster prevention, environmental protection, agricultural insurance subsidies and recovery assistance to individuals and states – totals around $4.9 trillion this century. China's $2.1 trillion was followed by the US' $1.38 trillion and India's $480 billion. While climate-related assistance has slowed in the US, China's and India's governments provide 65-70% of their countries' spending due largely to extremely low insurance penetration.

**Figure 1: Climate-Related Disaster Costs Global Breakdown**

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**The US leads in climate-related disaster damages**

The BI Climate Damages Tracker includes estimates for climate-related economic damages (insured and uninsured), government spending and total spending (damages plus government expenditures) as a portion of country-level gross domestic product for 50 countries since January 2000. The countries are organized into the US, EMEA, Asia and the Americas excluding the US. They represent 87% of global GDP in 2025.

To capture how climate-related costs flow back into the economy, the tracker assigns different spending curves to different types of costs. For example, insured losses are generally paid out over one year, with the majority paid in the first six months, so are calculated using a 12-month gamma curve, which skews spending toward the first few months following the event.

Similarly, uninsured losses are calculated using a 24-month gamma curve and government spending with a 36-month gamma curve, which is based on a review of distributions in federal spending reports.

Total spending on insured and uninsured losses plus infrastructure damages has exceeded $11.5 trillion this century, the tracker shows. National governments accounted for 53% of the total over the past five years, compared with 22% in 2000-09. Despite efforts by the insurance industry to sharply increase penetration, uninsured losses have remained fairly stable, accounting for 65% of average losses over the past five years and 69% in 2000-09, as Figure 2 shows.

A more comprehensive analysis for the US, which includes estimates of construction inflation, power outages, and net insurance premiums after loss (premiums written less insured losses paid out) isn't available for other countries due to a lack of timely data. As seen in Figure 3, adding in

the assessment of the full US impact boosts climate-related spending to $18.5 trillion and suggests a steeper climb recently.

**Figure 2: Monthly Insured, Uninsured, Government Spending**

BI **US government spending on disasters has accelerated**

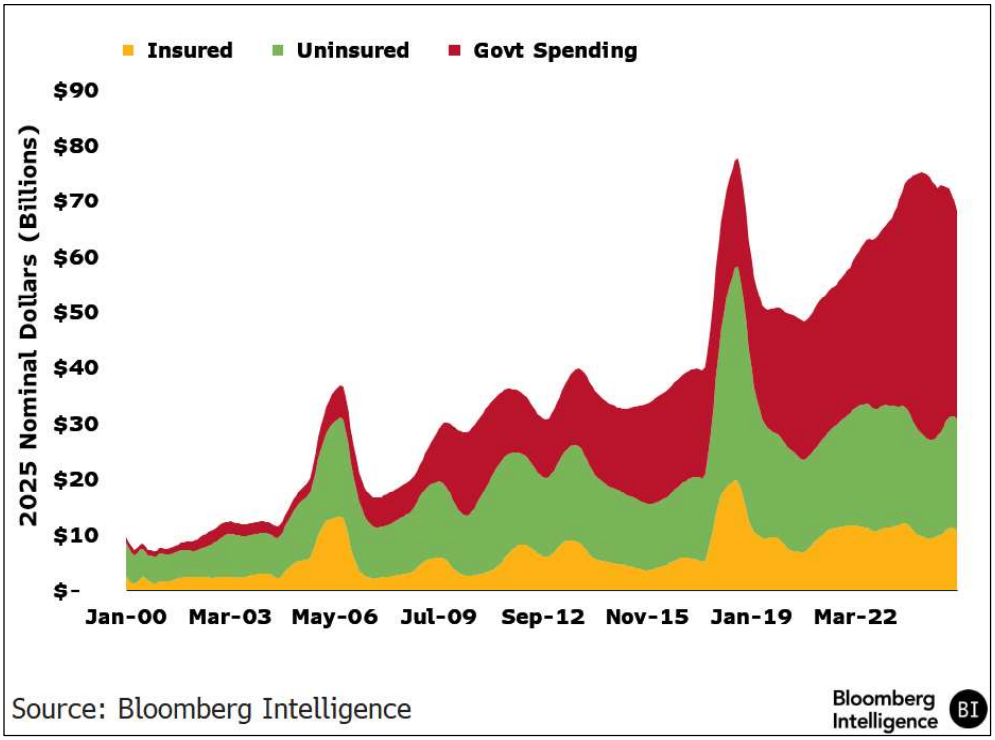
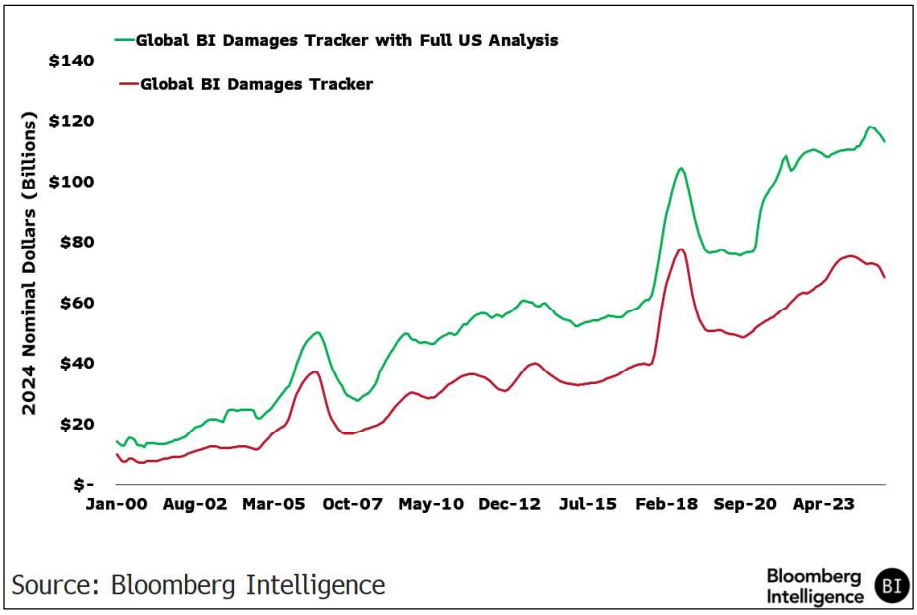



**Figure 3: Monthly Damages Tracker Including Full US Analysis**

BI **Disaster costs rise with full US analysis**



## 3.2 US Climate Impacts Near $1 Trillion Over 12 Months

US climate-related spending linked to disasters, insurance premiums, government grants and power outages generated a record $955 billion in economic costs over the 12 months through April, representing more than 3% of gross domestic product and effectively creating a stealth tariff on consumer spending, our analysis shows.

The primary drivers were recovery spending from Hurricanes Helene and Milton and the Los Angeles wildfires, resiliency outlays funded by the Inflation Reduction Act (IRA) and US infrastructure legislation, and an 11% bump in multi-peril insurance premiums to $310 billion in 2024. These costs are diverting around $80 billion a month from other economic activity.

Though climate-related costs reached a record in dollar terms over the past year, as a percentage of GDP, 3.2% is still slightly less than in 2017 (Hurricanes Harvey, Irma) and 2005 (Hurricane Katrina). At the state level, North Carolina and South Carolina were particularly hard hit by Helene, which caused over $78 billion in economic losses, equivalent to around 8-9% in local GDP terms, according to our Climate Damages Tracker.

The tracker's results, highlighted in Figure 4, show that total US climate-related costs from insurance premiums, power outages, disaster recovery and uninsured damages increased by $7.7 trillion this century relative to a 1999 baseline. As seen in Figure 5, this represented 36% of US GDP growth ($20.3 trillion) in the period, using a 12-month moving average and excluding costs tied to auto insurance, health and wages that are more difficult to measure.

According to the Stanford Institute for Economic Policy Research, the impact of wildfire smoke days on wages alone could reach $150 billion a year (in 2025 dollars), putting losses-to-trend GDP growth this century closer to 50%.

**Figure 4: US Climate-Related Spending 12-Month Moving Average by Type**

BI **Economic damages make up biggest share of US climate spending**

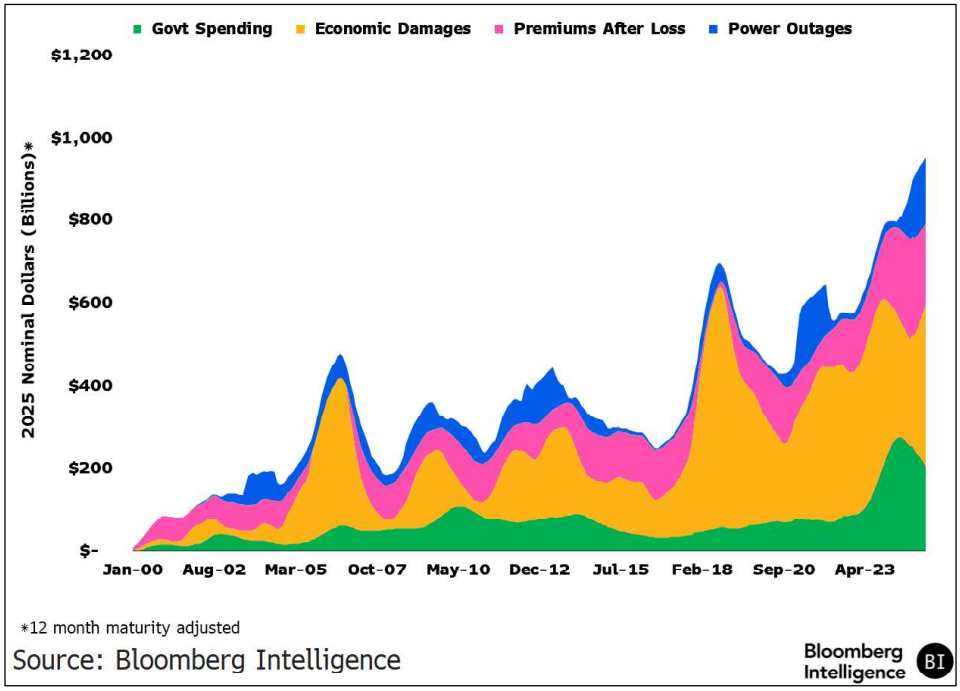
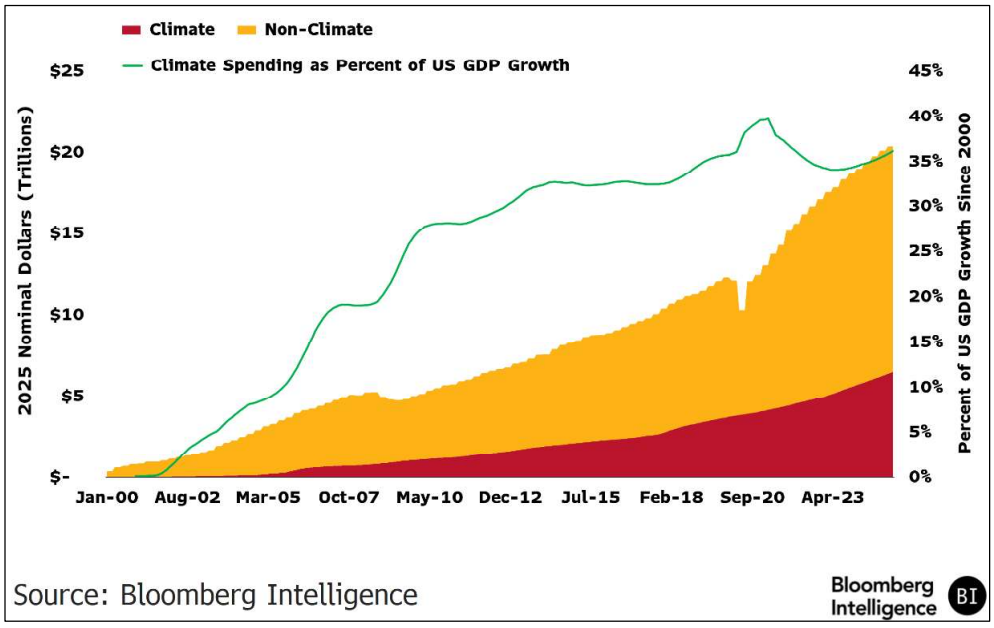



**Figure 5: Climate-Related GDP Growth as Percentage of Total**

BI **US climate spending stands at 36% of GDP growth**




## 3.3 Insurance Premiums Are Hidden Driver of Inflation

The rise in fires, floods and storms has forced insurers to reprice risk, raising rates as much as 22% in 2023 and pushing total multi-peril premiums (home, fire, commercial, farmer and allied lines)

above $300 billion, according to the National Association of Insurance Commissioners (NAIC). S&P Global expects premiums to rise 6.2% in 2025.

The P&C industry has struggled to price these risks in a way that secures a stable stream of returns. As indicated in Figure 6, net premium after loss (total premiums less insured payouts) fell below zero in 2017 and approached zero three times in the past few years. Though the 2023 rate hikes helped create a buffer for Allstate and other P&C insurers, the cushion has been eroded in recent months by developments including an estimated $40 billion bill for the Los Angeles wildfires.

A hidden burden of the climate economy is home insurance, which totaled $172 billion in the US in 2024 and is excluded from Consumer Price Index calculations, understating housing costs by an average of 7% in Texas and 11% in Oklahoma. Nationally, home-insurance premiums may divert as much as 4.6% of spending away from non-discretionary items and services, our analysis shows.

Shelter is the largest component of the US CPI, a measure of changes in prices paid by urban consumers, representing 35.5% of the total weight. The Bureau of Labor Statistics includes tenant insurance, yet home insurance – an 11 times bigger outlay ($2,109 vs. $185) – isn't included in the calculation, since it's considered "out of scope."

BI finds that including the cost of home insurance at parity with tenant insurance (at a 0.41% overall weight) since 2017 would have doubled the weight of home insurance in the CPI to 4.6% in 2024 from 2.3% in 2017. That would lift the overall weight for shelter above 40% of the total, as shown in Figure 6.

**Figure 6: Home Insurance Inclusion in CPI at Tenant Parity**

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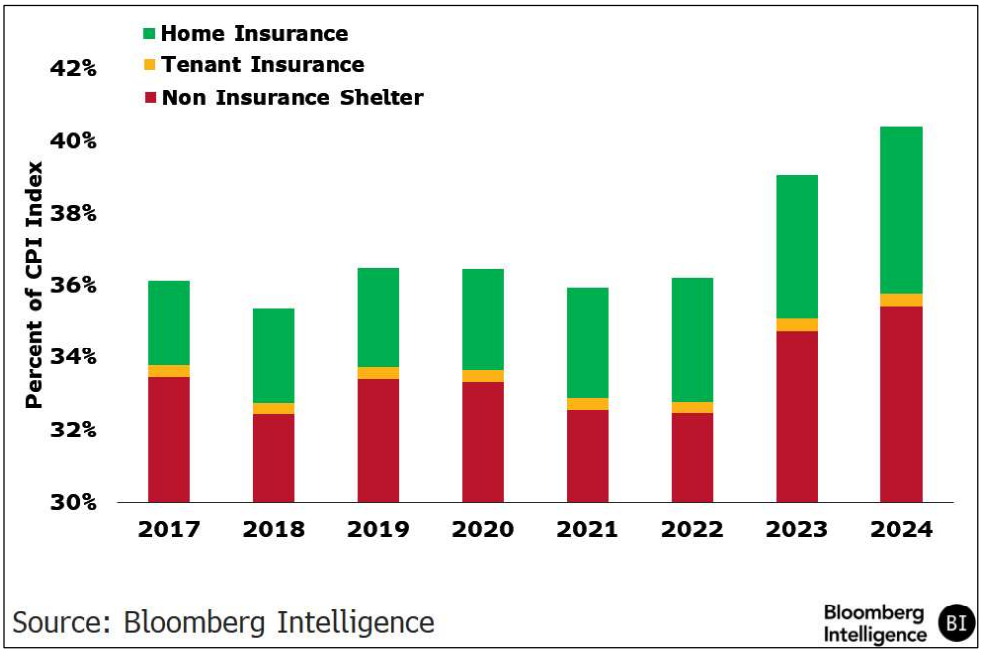
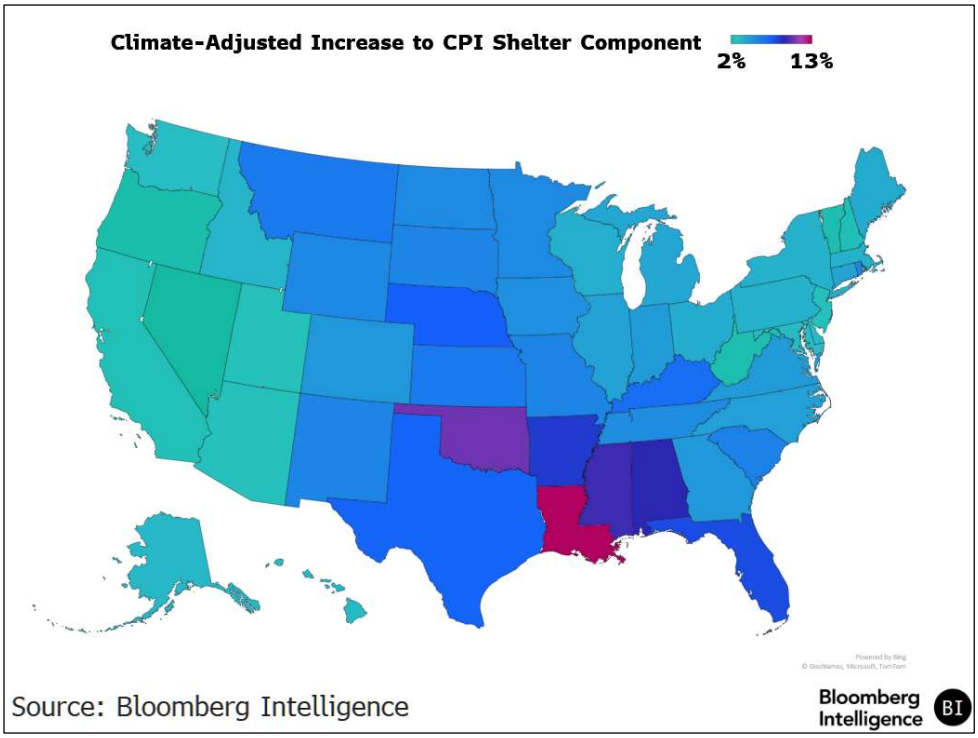
**Shelter accounts for rising share of CPI**



Including home insurance in the CPI calculation could increase the percentage of costs related to shelter by as much as 4.6% at the national level, yet the impact at the state level would vary widely due to premiums and local living costs. Using the Bureau of Economic Analysis' Regional Price Parity data, we calculate that high-premium, low-cost-of-living states like Oklahoma and Texas could force consumers to cut back discretionary spending compared with states like California, where housing costs are high but premiums low. Much of the gap in home insurance costs relative to the cost of living is due to greater exposure to natural catastrophes such as tornadoes and hurricanes.

**Figure 7: Home Premium Impact on CPI Housing Component**




BI **Net premiums can near zero even as premiums rise steadily**

# Section 4. US Spending

## Fading Federal Outlays Puts States' Safety Net at Risk

The US and state governments have provided nearly $1.3 trillion over the past 20 years to local communities to help them recover sooner from fires, floods and storms. But cuts to the Federal Emergency Management Agency may be the first step in taking away a $1.1 trillion safety net for states that includes funding from the departments of Agriculture and Housing and Urban Development.

## 4.1 States May Turn to Bond Markets for Replacement Funding

BI **FEMA provided about a third of federal disaster relief over past 20 years**

President Donald Trump has signaled that he wants states to take more responsibility for recovery efforts, and HUD's Community Development Block Grant disaster-recovery program is already being shuttered. State and local governments might struggle to obtain enough replacement funding through bond markets, while insurers of the US public-finance sector, such as Assured Guaranty, may benefit.

Apart from FEMA relief ($340 billion), federal grants over the past two decades have come through the Infrastructure Investment & Jobs Act of 2021 and the IRA ($183 billion), the Department of Housing and Urban Development ($171 billion) and supplementary budgets for major disasters ($251 billion), as indicated in Figure 8. The USDA provides significant climate-related support for farmers, with insurance-program indemnities for floods, fires and storms less premiums paid totaling $180 billion over the past 20 years.

States contributed $132 billion, largely in the form of matching funds. Replacing federal support will be challenging for states, given it represents nearly 76% of their $1.45 trillion in 2024 tax receipts. Disaster aid doesn't correlate well with tax-revenue generation; some states have received much higher percentages than the average, such as Iowa's 152% and Texas' 124%, while states like Connecticut (22%) and Illinois (30%) got substantially less.

About one-third of the $1.1 trillion in federal disaster aid ($367 billion) went directly to city and county government over the past 20 years. FEMA's Disaster Relief Fund alone provided $272 billion, which will be hard for municipalities to replace without inundating the market with climate debt. Though $1.1 trillion isn't much in the context of a $29 trillion economy, Figure 9 highlights that many rural areas have received the equivalent of a year's GDP, so any reductions would have outsized effects on local economies.

**Figure 8: Climate-Related Government Spending by Type**

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**US government climate spending spiked in 2023-24**

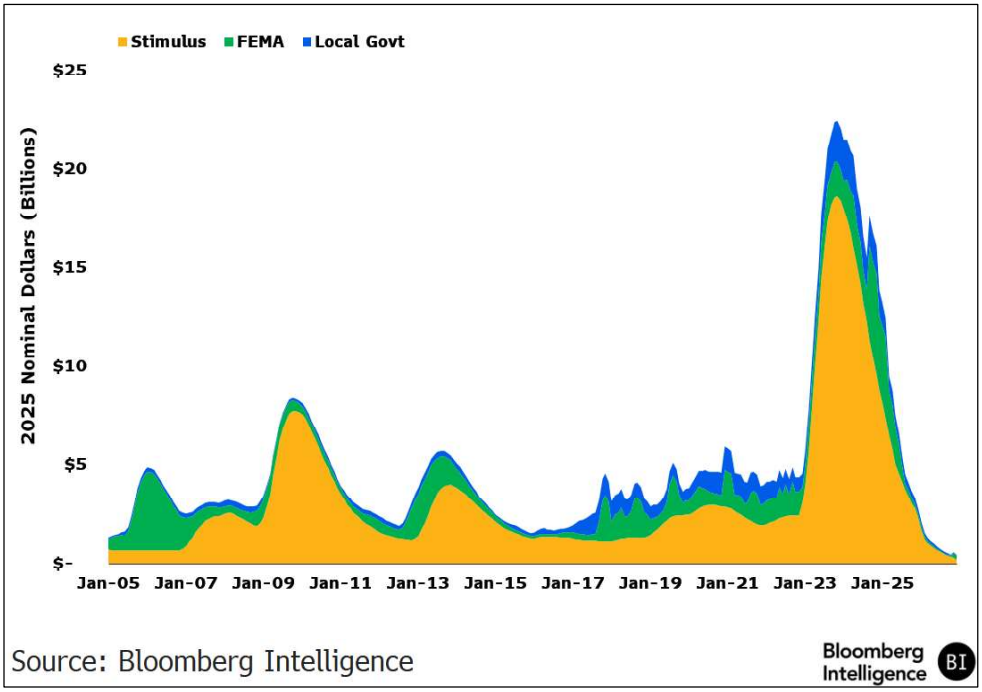


**Figure 9: Disaster Aid as Percentage of County-Level GDP**

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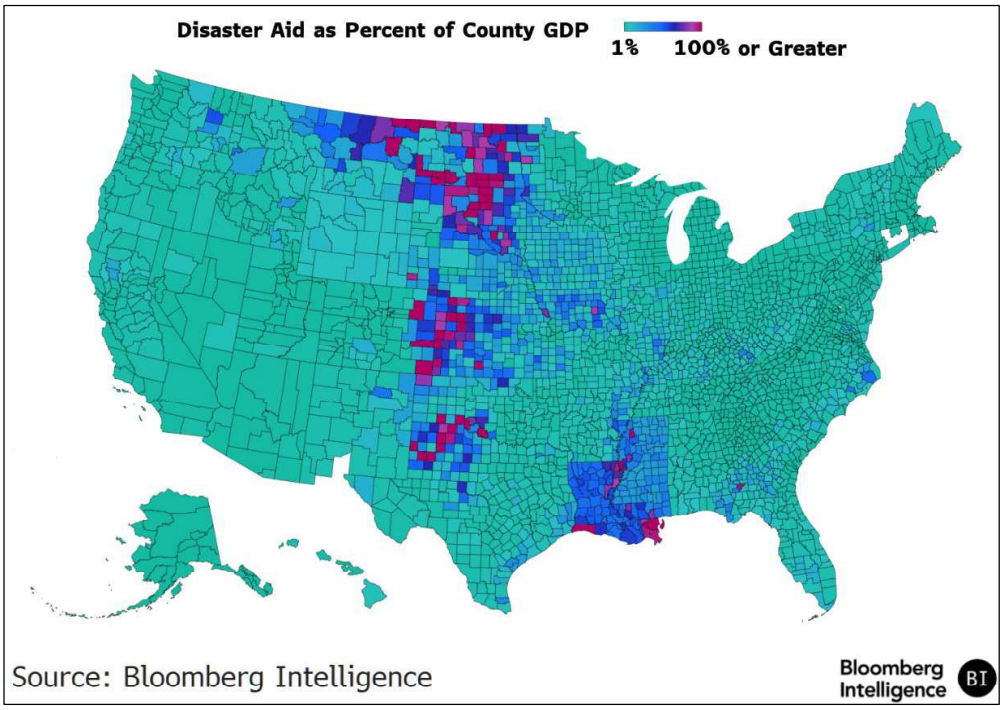
**Aid exceeds 100% of GDP in some rural US counties**



Among states, Texas was hardest-hit in the past 20 years, with $1.1 trillion in climate-related costs, followed by California ($938 billion) and Florida ($763 billion), according to BI's Climate Damages Tracker. Though the costs are substantial, the size of these states' economies ($10.4 trillion combined) means the impacts on a GDP basis were generally lower than for states like Louisiana ($425 billion in damages, with a $327 billion GDP in 2024).

Of the $108 billion in federal aid received by Texas, around 46% ($50 billion) went directly to cities such as Houston in Harris County or to counties like Montgomery. The money represented just 2% of GDP for Harris ($9.6 billion vs. $568 billion). But in farm-heavy areas like Knox County, $145 million in aid equaled 42% of the county's annual GDP ($346 million).

BI

**US disaster aid can be a key driver of local economies in rural counties**

In North Carolina, Hurricane Helene caused $59 billion in economic damage, or more than three times as much as Hurricane Florence in 2018 ($16.7 billion), according to the North Carolina Office of State Budget and Management. Only around 26% of Helene's costs have been covered: 13% by FEMA, 11% by insurers and 2% by the state.

That leaves 74% ($44 billion) in uninsured losses that the state's seeking to recover through grants from federal programs run by FEMA, HUD and others. Yet FEMA already reduced its Disaster Relief Fund pledge to the state to $6.9 billion in February's report from $7.5 billion in January's.

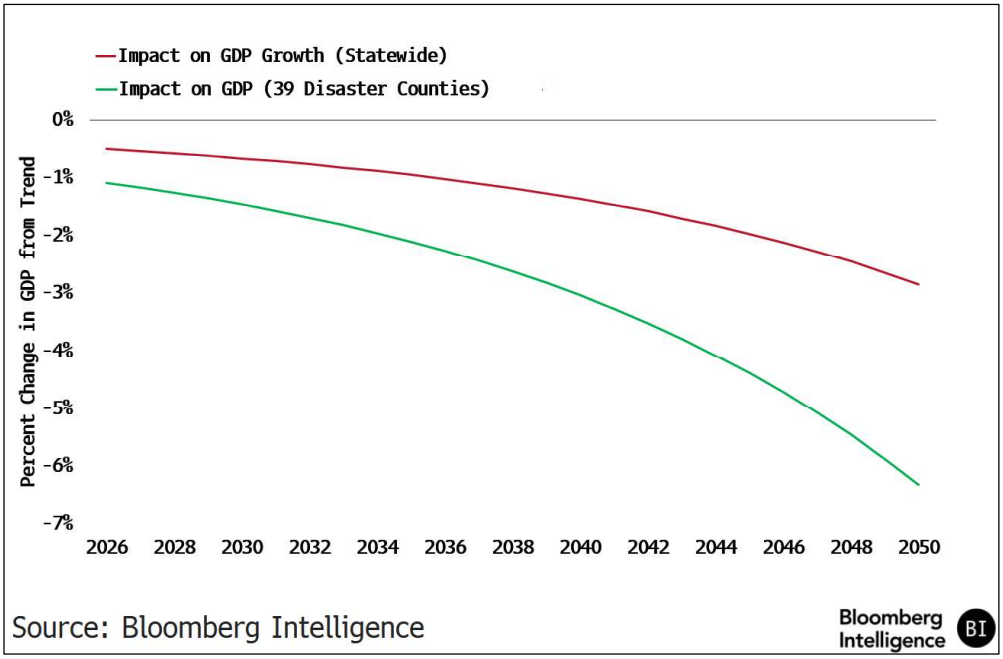
North Carolina's $44 billion in unfunded recovery investments in sewers, roads and structure repair due to Hurricane Helene could slow growth in the 39 disaster counties by an average of 3% ($220 billion) through 2050. That's based on FEMA's analysis, which finds that a $1 investment in flood control has delivered $5 in discounted benefits over the past 23 years.

Given these counties represent 45% of the state's 2024 GDP of around $833 billion, BI calculates that making do with less could slow the state by an average of 1.4% relative to trend through 2050, as shown in Figure 10.

North Carolina and California also were hit by major disasters in the past year, with the Los Angeles wildfires in January 2025 causing $65 billion in economic costs, while a hurricane that swept Asheville, North Carolina, in September 2024 led to $72 billion in damages. In addition to the reported losses, each state asked the federal government for $40 billion to fix sewers and cover expenses related to infrastructure repair.

The $40 billion is a large amount of capital to find if the federal government elects not to provide the assistance, but as a percentage of revenue it would fall far harder on North Carolina. The state raises $32 billion a year in revenue, much less than California, with its tax base of $255 billion.

**Figure 10: Impact of Unfunded Investments on Trend Growth**




BI

**Unfunded investments slowed long-term growth significantly in disaster-hit counties**

## 4.2 FEMA Overhaul Could Flood Muni Market

The Trump administration's efforts to revamp FEMA by substantially reducing the federal share of costs could create a flood of general-obligation (GO) bond issuance by state and local governments. A cost-sharing cut to 50% would have increased costs to Florida by $11 billion over the past 20 years – nearly equal to the state's outstanding GO debt. Puerto Rico would likely be most pressured, given that a 50% share would have increased the territory's costs by $26 billion, requiring 2.8 times its GO debt outstanding.

What's more, bond markets aren't big enough to fill the gap left by a federal pullback. Though the municipal market is worth $4.5 trillion, the GO portion represents only around 16.5% ($700 billion) of the total. Bonds repaid exclusively with state general revenues, such as disaster bonds, are a smaller slice.

Texas, for example, has received $58 billion in disaster funds at the state level from the federal government in the past 20 years. It would need to issue the equivalent of 80% of its total outstanding debt ($73 billion) and nearly 10 times the state's $6 billion in non-self-supporting GO debt if it were to use the debt markets to fund a similar amount in disaster recovery costs over the next two decades.

Besides the potential flood of supply, municipal-bond investors may face another climate-related concern: The more than doubling of disaster-related insurance premiums to $310 billion in 2024 from $144 billion in 2014. Such costs are difficult to scale back during recessions.

According to the US Census Bureau, states generated $1.48 trillion in tax receipts for 2024, or around five times their overall insurance costs. As shown in Figure 11, these expenses aren't

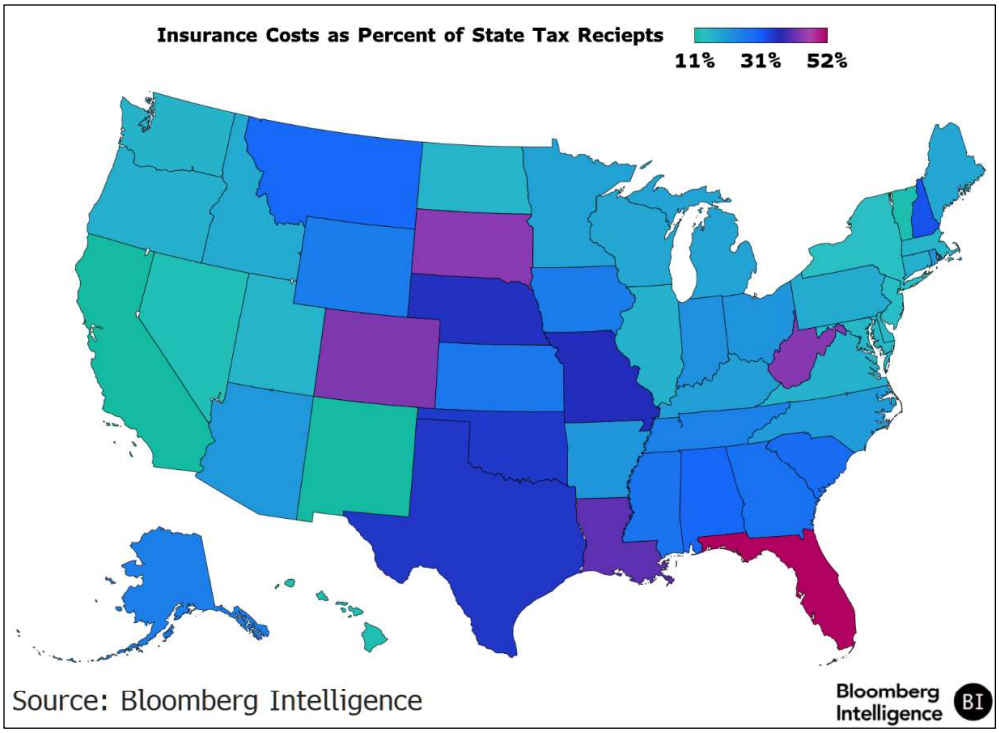
equally distributed – a state like California has a rather modest insurance bill relative to its tax base (11%), while Florida and Oklahoma have far larger percentages, at 52% and 35%.

Assured Guaranty, the largest insurer of financial obligations for the US public-finance sector, with a 58% market share, appears well-placed for growth if local-government debt issuance increases. Only about 8.3% of total issuance is insured. Assured insures $78 billion of GO bonds, followed by transport, health care and other ($56 billion), tax-backed ($34 billion) and municipal utilities ($30 billion).

The company's municipal-utility business could also generate greater margins if infrastructure-repair costs from fires, floods and storms aren't made on a timely basis.

**Figure 11: Insurance as a Percentage of State Tax Receipts**

BI **Florida leads US in insurance costs as percentage of tax receipts**




## 4.3 Asset Owners Face Higher Costs If Disaster Aid Recedes

Disaster-related aid and programs, in addition to providing a lifeline to cash-starved state and local governments, have contributed to the value of private assets like industrial or commercial buildings by providing short-term funding to local businesses and consumers and longer-term funding to repair key infrastructure.

To get an approximation of this benefit, we ranked counties in Texas for short-term (public assistance) and long-term funding received over the past 20 years, then combined the scores to arrive at a 1-10 rank. We found that a county like Coke, in the state's rural southwest, has low exposure to federal programs, while Harris, which includes the Houston metropolitan area, has high exposure.

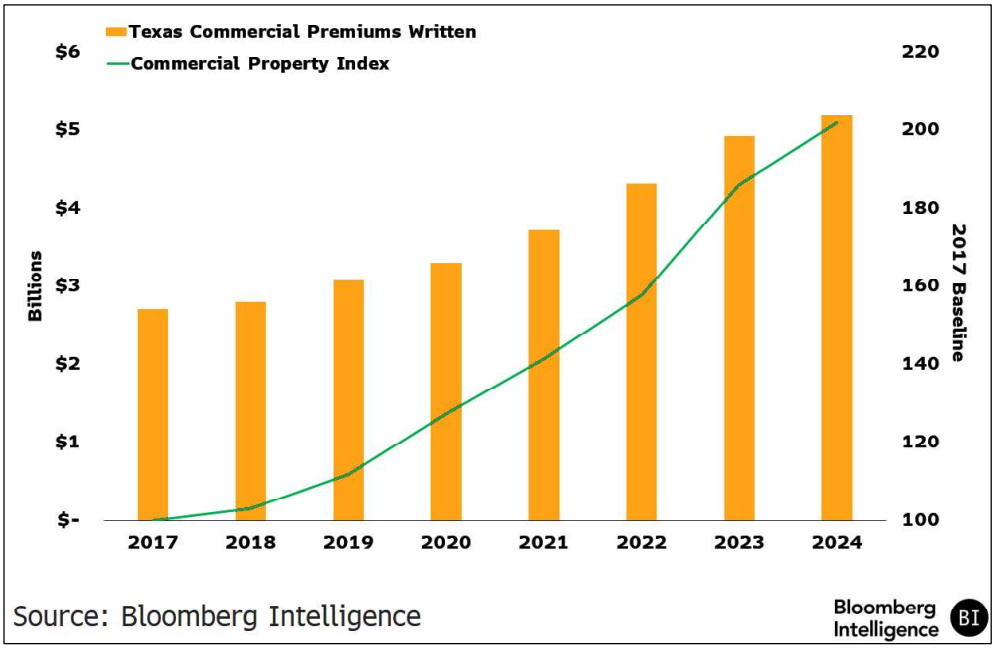
If local governments are forced to go it alone, commercial property insurance premiums could rise as companies face extended periods of business disruption in the short term and poorer infrastructure services over the long run. According to the Council of Insurance Agents & Brokers, commercial property insurance premiums in Texas almost doubled to $5.2 billion in 2024 from $2.7 billion in 2017, as shown in Figure 12.

Owners of interests in consumer-facing businesses could be significantly affected by a scaling back of FEMA's direct homeowner- and renter-assistance payments, which totaled $35 billion over the past 20 years, with $5 billion flowing to Texas. These payments are used to cover basic needs following disasters.

FEMA's National Flood Insurance Program (NFIP) has been critical to stabilizing the private-insurance markets in many coastal regions of the US. It has 4.7 million policies in force, representing $1.3 trillion in coverage, and largely exists due to the lack of affordable private alternatives. In Harris County, for example, the NFIP provides flood coverage for 23% of all structures (261,000 out of 1.12 million). Without it, the costs of insurance coverage will rise for asset owners and their customers in the Houston area.

BI **Texas commercial property insurance premiums almost doubled from 2017-24**

**Figure 12: Commercial Insurance Inflation, Premiums Written**



# Section 5. Carbon Reduction

## Top CO2 Emitters' Goals Lack Ambition, Credibility

The world's top carbon-dioxide emitters aren't acting urgently enough to stem climate change. Only about a third of companies in the BI Carbon coverage universe aim to cut CO2 by 2030 in line with an industry-specific and 1.5 degrees Celsius-aligned benchmark. The group represents nearly 55% of operational emissions from listed companies, and its failure to decarbonize provides a barometer for global CO2 trajectories.

## 5.1 Top Emitters' Targets Are Climate Bellwethers

Global emissions tied to fossil fuels climbed to a record in 2024, and the United Nations puts the trajectory of warming at 3.1 degrees Celsius by 2100. To limit the global increase in average surface temperature to 1.5 degrees Celsius above pre-industrial levels, the International Energy Agency has laid out a scenario for reaching Net Zero Emissions (NZE) by 2050. It includes a 33% reduction in emissions by 2030, enabled by a tripling of renewable power.

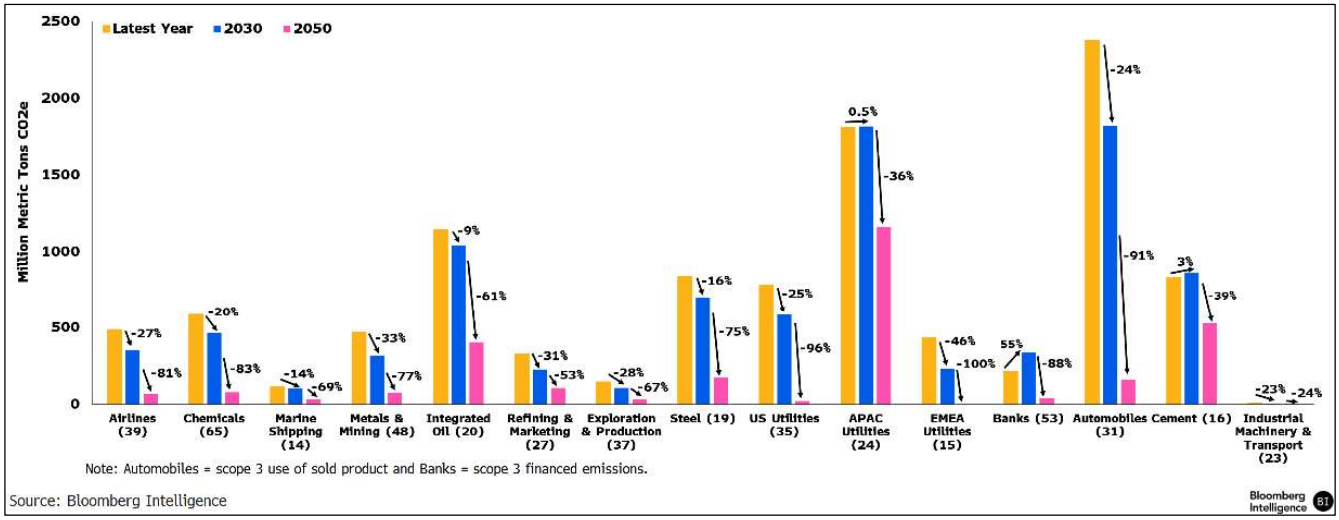
About 98% of companies report operational CO2 emissions data in our peer set, and 84% have reduction targets, based on our analysis of 494 firms across the most carbon-intensive industries: airlines, utilities, metals and mining, steel, marine shipping, cement, automobiles, integrated oil, refining and marketing, E&Ps, banking, chemicals and industrial machinery and transportation.

The companies' actions are critical to making the cuts needed to minimize the impact of climate change, given the slower progress made by public and private-sector peers. For those that fail to act, the potential for increased costs, stranded assets and shareholder pressure will likely rise. The group represents 80% of the Climate Action 100, and its 8 billion metric tons of Scope 1 (direct) and 2 (indirect from purchased energy) account for 53% of total emissions from listed companies, excluding those associated with land-use change.

Yet only 163 of the companies have CO2 targets in line with the IEA's 2030 benchmark. Most intensity targets are concentrated in transportation industries, including autos, marine shipping and airlines. The IEA scenario anticipates airline industry activity, measured in passenger kilometers, will increase 33% from 2023-30.

Operational emissions for the 494 companies are set to drop 14% from the latest year to 2030, and about 60% by 2050, based on our analysis, which is broken out by sector in Figure 13. Such a reduction would be more ambitious than government policies, but if emissions are held constant for those yet to establish a target, the group is still poised to be shy of the IEA's goals for 2030 and 2050, as seen in Figure 14.

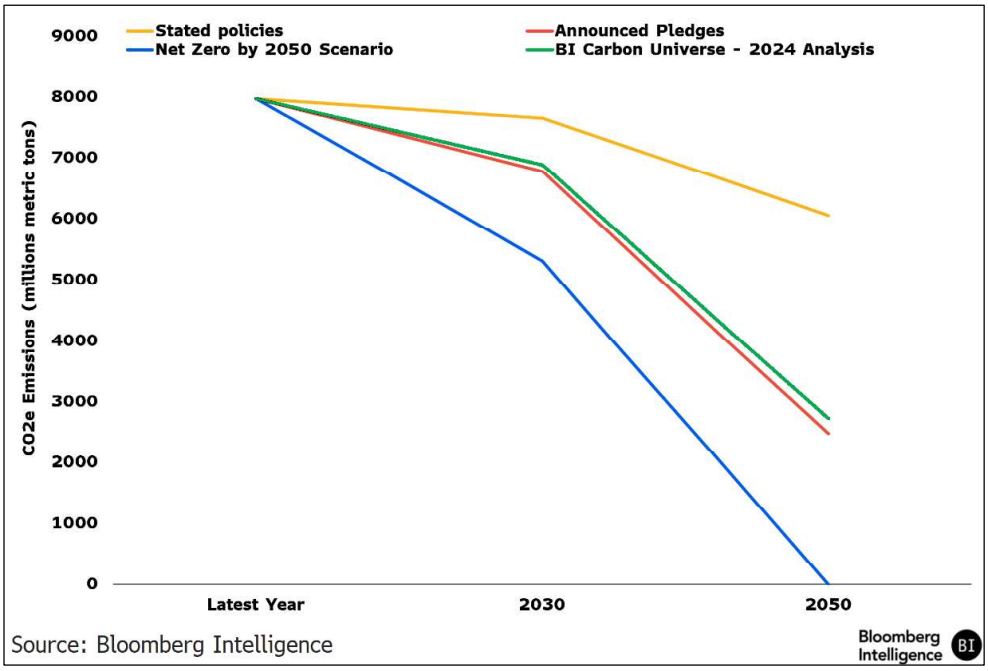
**Figure 13: BI Carbon: Forecast CO2 Emissions Reductions by Sector**




BI

**Carbon-reduction gap widens between stated policies and IEA target**

**Figure 14: Forecast CO2 Reductions vs. IEA Scenarios**




We also analyzed the credibility of carbon targets for airlines, chemicals, marine shipping, automobiles, exploration and production, cement and integrated oil industries. Of the 257 companies we examined, 24 appear credible when industry-specific decarbonization metrics like reduction trends, sustainable aviation fuel and electric-vehicle sales are considered.

Of those, just eight – Ryanair, Norwegian Air, DuPont, CMB.Tech's Euronav, K-Line, Southwestern Energy, Chesapeake and PG&E – had CO2-reduction goals in line with our benchmark, meaning

the others' aims aren't ambitious enough to meet the IEA's temperature-aligned standard. Southwestern and Chesapeake combined to form Expand Energy in 2024.

The credibility of targets varies by industry. Automobiles' Scope 3 (use of sold products) emissions account for 16% of global GHG emissions, and our peer set of 31 companies emits over 2.3 billion metric tons of CO2. Only five companies with internal combustion-engine cars have 1.5-degree Celsius-aligned targets, and our analysis – based on plans to transition to electric and hybrid vehicles – suggests none of them are credible.

## 5.2 ESG Scores Help Identify Areas of Climate Risk

Industries like electric utilities and power generation will need to reduce CO2 emissions while also being exposed to the physical impacts of climate change. Bloomberg's ESG scores and underlying materiality analysis can help investors understand where to focus when assessing risk, opportunity and performance.

About 11%, or 1,802, of the companies in the Bloomberg ESG Score Total Coverage Index (BESGCOV) account for nearly 80% of the group's Scope 1 emissions. The weightings underlying our ESG scores derive from an industry-specific financial materiality analysis – detailed in Figure 15 – that evaluates the impacts of each issue, including potential regulatory costs, demand erosion and stranded assets.

Climate Exposure identifies industries that face material risk or opportunity related to the energy transition or the physical impacts of climate change. GHG Emissions Management addresses which industries may have material costs as efforts to reduce CO2 continue.

Based on our analysis, 39 of 106 industries have Climate Exposure as a material issue vs. 51 for GHG emissions management. Twenty-seven industries are exposed to both. For utilities and power generation, the two issues account for nearly 24% of the overall environmental score, underscoring the industries' exposure to both greenhouse-gas reduction efforts and physical risk.

As laid out in Figure 16, the 9,600-plus companies in the 61 industries where GHG emissions management was deemed not material accounted for just 7% of index Scope 1 emissions, suggesting finite financial risk and limited potential for climate impacts from direct emissions.

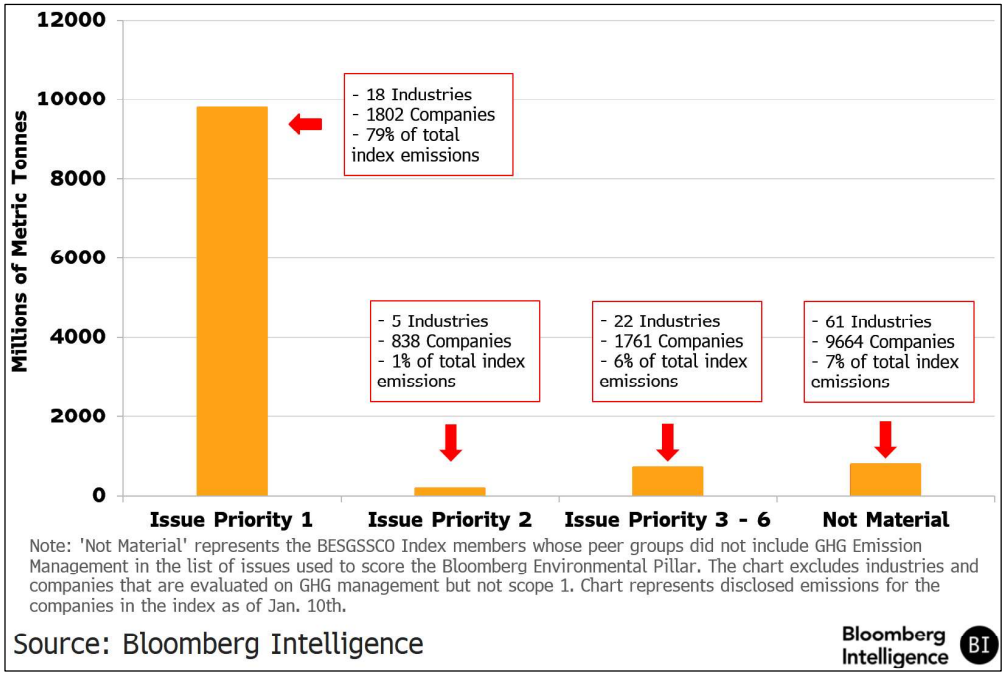
**Figure 15: Climate-Issue Weights**

| Sector | Industry Peer Group | Climate Exposure | GHG Emissions Management | Environmental Pillar |
|---|---|---|---|---|
| Aerospace & Defense | Aircraft & Parts | 11.5 | 21.2 | 30.0 |
| | Defense | 11.5 | 21.2 | 22.2 |
| Agriculture | Aquaculture and Fishing | 1.7 | | 41.7 |
| | Agricultural Producers & Wholesalers | 7.9 | 14.5 | 45.5 |
| | Meat & Eggs | 1.3 | 7.7 | 38.5 |
| Apparel & Textile | Apparel Manufacturers & Retailers | | 41.6 | 36.4 |
| Automotive | Automobiles | 24.9 | 24.9 | 45.5 |
| Chemicals | Agricultural Chemicals | 13.2 | 24.6 | 45.5 |
| | Specialty Chemicals | 13.2 | 24.6 | 45.5 |
| | Basic & Diversified Chemicals | 13.2 | 24.6 | 45.5 |
| Construction Materials | Building Materials | 11.7 | 21.7 | 40.0 |
| | Cement | 21.7 | 21.7 | 50.0 |
| Containers & Packaging | Metal Containers & Packaging | | 9.0 | 44.4 |
| | Paper Containers & Packaging | | 8.5 | 50.0 |
| | Plastic Containers & Packaging | | 12.6 | 44.4 |
| E-Commerce | E-Commerce | | 18.1 | 33.3 |
| Electric Utilities | Integrated Electric Utilities and Power Generation | 23.5 | 23.5 | 45.5 |
| | Electric Transmission & Dist | 39.4 | 39.4 | 44.4 |
| Engineering & Construction | Engineering & Construction | 44.4 | 31.7 | 41.7 |
| Factory Machinery & Equipment | Factory Machinery & Equipment | | 29.4 | 40.0 |
| Forestry, Paper and Wood Products | Forestry & Timber REIT | 8.5 | | 45.5 |
| Gas Utilities | Gas Utilities | | 44.4 | 44.4 |
| Healthcare Facilities & Services | Healthcare Facilities | 21.2 | | 20.0 |
| | Managed Care | 21.9 | | 11.1 |
| Homebuilders | Homebuilders | 38.1 | | 44.4 |
| Industrial Intermediate Prod | Industrial Intermediate Prod | | 44.4 | 40.0 |
| Leisure Facilities & Services | Casinos | 3.7 | | 33.3 |
| | Cruise Lines | | 23.3 | 41.7 |
| | Hotels | 16.1 | | 40.0 |
| | Restaurants | | 15.9 | 38.5 |
| Machinery and Transportation Equipment | Transportation Equipment & Mobile Machinery | | 29.4 | 33.3 |
| Metals & Mining | Precious Metals and Mineral & Precious Stone Mining | 1.6 | 13.9 | 36.4 |
| | Iron and Base Metals | 9.6 | 22.1 | 41.7 |
| | Coal | 9.9 | 27.0 | 45.5 |
| Oil & Gas Producers | Exploration & Production | 30.0 | 30.0 | 45.5 |
| | Integrated Oils | 25.2 | 25.2 | 45.5 |
| | Midstream | | 39.4 | 44.4 |
| | Refining & Marketing | | 31.7 | 45.5 |
| Oil & Gas Services & Equipment | Drilling & Drilling Support | | 23.1 | 40.0 |
| | Oilfield Services & Equipment | | 23.1 | 40.0 |
| Real Estate Owners & Developers + REITs | Industrial, Specialty and Other REIT | 17.6 | 12.1 | 50.0 |
| | Retail Owners & Developers + REITs | 17.6 | 12.1 | 50.0 |
| | Office Owners & Developers + REITs | 17.6 | 12.1 | 50.0 |
| | Health Care Owners & Developers + REITs | 17.6 | 12.1 | 50.0 |
| | Residential Owners & Developers + REITs | 17.3 | 11.8 | 50.0 |
| | Multi Asset Owners & Developers + REITs | 17.3 | 11.8 | 50.0 |
| | Hotel Owners & Developers +REITs | 17.3 | 11.8 | 50.0 |
| Renewable Energy Equipment | Fuel Cells, Storage, and Other Renewable Energy Equipment | 16.1 | | 50.0 |
| | Solar Energy Equipment | | 9.7 | 40.0 |
| Retail & Wholesale | Consumer Staples Retail | | 11.0 | 27.3 |
| | Food & Beverage Wholesalers | | 11.0 | 20.0 |
| Semiconductors | Semiconductors | | 12.9 | 40.0 |
| Steel | Steel Producers | 2.9 | 27.1 | 50.0 |
| Telecommunications & Media | Data Centers | 3.2 | | 45.5 |
| | Satellite Operators | 23.9 | | 40.0 |
| | Telecommunications, Cable & Satellite Services | 4.5 | | 27.3 |
| Transportation & Logistics | Air Freight, Courier, Logistics and Trucking | | 23.9 | 41.7 |
| | Airlines | 7.7 | 53.9 | 38.5 |
| | Marine Shipping | | 16.1 | 50.0 |
| | Rail Freight and Transit Services | | 41.6 | 41.7 |
| | Transport Operations & Services | | 41.6 | 41.7 |
| Waste Management | Waste Management | | 30.0 | 50.0 |
| Water Utilities | Water Utilities | 15.4 | | 50.0 |

Source: Bloomberg Intelligence

Bloomberg Intelligence BI

**Figure 16: Aggregate Scope 1 Emissions (2023)**




**Almost 80% of emissions are produced by 13% of companies**

## 5.3 CO2-Removal Market Could Reach $1.2 Trillion by 2050

Though decarbonization remains central to tackling climate change, there's a greater recognition that carbon removal will need to play a role, as indicated in Figure 17. The carbon dioxide-removal (CDR) market is expected to expand at a 14.8% CAGR, reaching $2.1 billion in 2032 from $610 million in 2023, based on Custom Market Insights data. According to McKinsey, it could hit $1.2 trillion by 2050.

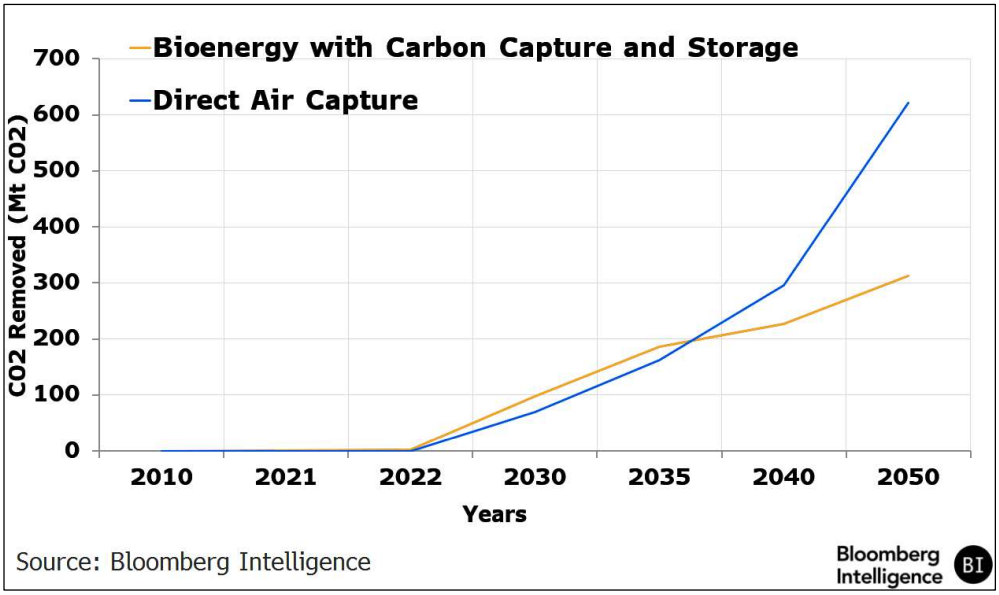
The Intergovernmental Panel on Climate Change and IEA call for an increase in CDR to as much as 13 gigatons a year from about 2 Gt today in their 1.5- and 2-degrees-Celsius climate scenarios.

Companies involved in direct air capture and bioenergy with carbon capture and storage, including Aker Carbon Capture, Capsol Technologies, Calix, Chart Industries, LanzaTech and SLB, appear poised to benefit. Aker will provide five Just Catch 100 units for Orsted's BECCS project in Denmark, which aims to capture 500,000 metric tons of CO2 annually starting in 2026. Aker consensus expects total revenue to gain over 15% to $105.2 million from 2024-26.

Aker and SLB announced a joint venture in 2024 focused on scaling up industrial decarbonization and commercializing disruptive technologies to address climate change. SLB targets $3 billion in revenue from the new business by 2030.

**Figure 17: IEA Net Zero by 2050: Carbon-Removal Projections**

BI **Direct air capture projected to take leading role in carbon removal**




## 5.4 Carbon Markets: RGGI, EU and China ETFs

Carbon markets have emerged as critical mechanisms for governments seeking to curb GHG emissions, with the trajectories for the US, EU and China shown in Figure 18. These frameworks require emitters to purchase allowances for emissions, rewarding low emitters, penalizing heavy polluters and creating new investment. Major markets include the Regional Greenhouse Gas Initiative (RGGI), the China National Emissions Trading System and the EU Emissions Trading System.

The RGGI is a cap-and-trade framework covering power-sector emissions across 10 US states. The system was established in 2005, and its first compliance period was in 2009. Under RGGI, an emissions cap is set that declines over time. Power plants are required to purchase allowances at quarterly auctions for each ton of CO2 emitted for fossil-fuel-fired units that have a nameplate capacity of at least 25 megawatts.

RGGI states have reduced annual power-sector emissions by about 44% against a 2006-08 baseline while raising $9 billion for initiatives such as renewable energy, energy efficiency and consumer benefit programs. The 10 participating states are New York, New Jersey, Maryland, Connecticut, Maine, Rhode Island, Vermont, New Hampshire, Delaware and Massachusetts.

The China National Emissions Trading System is the world's largest carbon market by emissions coverage, regulating around 5 billion metric tons of CO2, or 10% of global emissions, from 2,000 power generators. By the end of 2025, the system is poised to expand to include cement, steel and aluminum industries, covering 2024 emissions and raising global emissions coverage to nearly 15%.

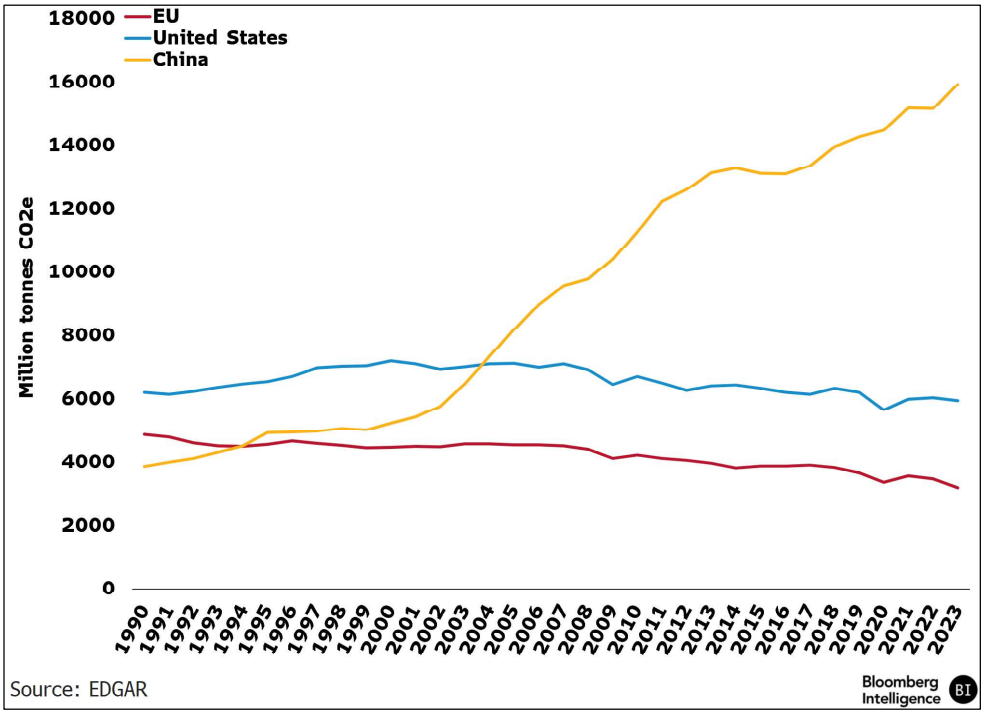
This expansion could continue to enhance corporate emissions transparency, as the compliance standards require companies to monitor emissions monthly and submit independently verified annual reports. Disclosure for electric utilities in China covered in our BI Carbon analysis has been improving, with 72% disclosing at least one year of emissions data, indicating about 49% of China's GHG emissions are generated by the power industry.

The European Union Emissions Trading System, the largest carbon market by trading volume, supports the EU's goal of reducing EU and member state emissions by 55% from 1990-2030. Launched in 2005, the cap-and-trade system covers around 40% of the EU's greenhouse-gas emissions. Its emissions cap declines annually, and the reduction of free allowances has helped to drive a near tripling in allowance prices from the 2020 average.

From 2005-23, the EU ETS contributed to a 48% reduction in emissions from stationary installations as it generated nearly €200 billion in revenue – funding investments in renewable energy, low emissions transport and energy efficiency.

**Figure 18: Regional GHG Emission: 1990-2023**

BI **China's GHG emissions rose through 2023 as US and EU's fell**



# Section 6. Excess Returns

## Climate Data Drive Excess Returns Across Sectors

Companies that seek to meet the challenges of rising climate costs, including those focused on cooling, the efficiency of artificial intelligence, managing catastrophe risk and lowering emissions intensity per unit of output in oil and gas, cement, steel and aluminum, have posted returns that beat peers by an average of 820 bps a year over the past three years.

## 6.1 Lower Impact, Higher Returns

In our study of 376 companies, we found that efforts to reward low-intensity output in the European Union and China, meet the challenges of AI power demand, provide cooling services and adapt to a changing climate could provide additional tailwinds for these groups.

Low-carbon-impact companies in steel (Steel Dynamics), aluminum (Yunnan Aluminium), cement (Heidelberg Materials), airlines (Qantas) and upstream oil and gas (EQT) outpaced peers' returns by an average of 12 percentage points over one year, 9 points over three years and 8 points over five, according to a Bloomberg Intelligence study of 213 global firms in five sectors using data from BI's Upstream Oil and Gas Tracker and Global Emissions Intensity Tracker. The sector results are broken down in Figure 19.

BI **Oil and gas tops one-year excess returns; steel ahead over five years**

**Figure 19: Annual Excess Returns From Low-Impact Sector Group**

| Excess Returns | 1yr | 3yr | 5yr |
|---|---|---|---|
| Upstream O&G | 18% | 11% | 8% |
| Steel | 5% | 3% | 10% |
| Airlines | 11% | 17% | 8% |
| Aluminum | 12% | 7% | 6% |
| Cement | 13% | 6% | 7% |
| Average | 12% | 9% | 8% |

Source: Bloomberg Intelligence

Bloomberg Intelligence BI

Oil and gas producers with the lowest methane emissions per barrel (top 25%), like EQT and Antero Resources, have significantly outperformed higher-emission peers (bottom 25%), with excess returns of 29 points over the past year and 13 points annually over five years on an equal-weight beta-neutral basis, according to a study of 59 companies with operations in the US.

Methane from upstream and midstream oil and gas operations is larger than all transportation fuels' emissions combined (6 gigatons vs. 5.8) over a 20-year horizon, making methane efficiency one of the most impactful areas for environmental improvement, based on our Upstream Oil and Gas Tracker and the IEA's Methane Tracker.

Low-carbon steel firms (top third) such as Steel Dynamics and Grupo Simec, which use electric arc furnaces, have outperformed high-intensity blast-furnace peers (bottom third) like Cleveland-

Cliffs and Liuzhou Iron & Steel by 9.5 points annually over the past five years, based on a study of 63 equal-weighted companies.

Tariff concerns may continue to aid firms that use recycled steel as a primary input, as was the case during the pandemic, when sources of iron ore and metallurgical coal became constrained. Chinese blast-furnace producers like Hesteel could keep facing headwinds as that country's government looks to halt raw steel growth to meet 2030 climate targets for the sector.

Airlines with the highest load factors (top half) like Qantas and China Southern Airlines have outpaced lower utilization-rate peers such as Ana Holdings and Azul by 10.9 points over the past year and 8.1 points annually over five years, a study of 36 equal-weighted firms shows. We use load factor to compare a broader universe of airlines, given that the emissions intensity per passenger of short-haul flights is far higher than for long haul, skewing an emissions per traveler comparison.

Aluminum producers with the lowest carbon emissions per ton of output (top half) like Yunnan Aluminium and Century Aluminum have exceeded higher-emitting peers (bottom half), including Jiaozuo Wanfang Aluminum and South32, by generating 11 points in excess return over one year and 6 points over five years, according to an equal-weight study of 22 global companies.

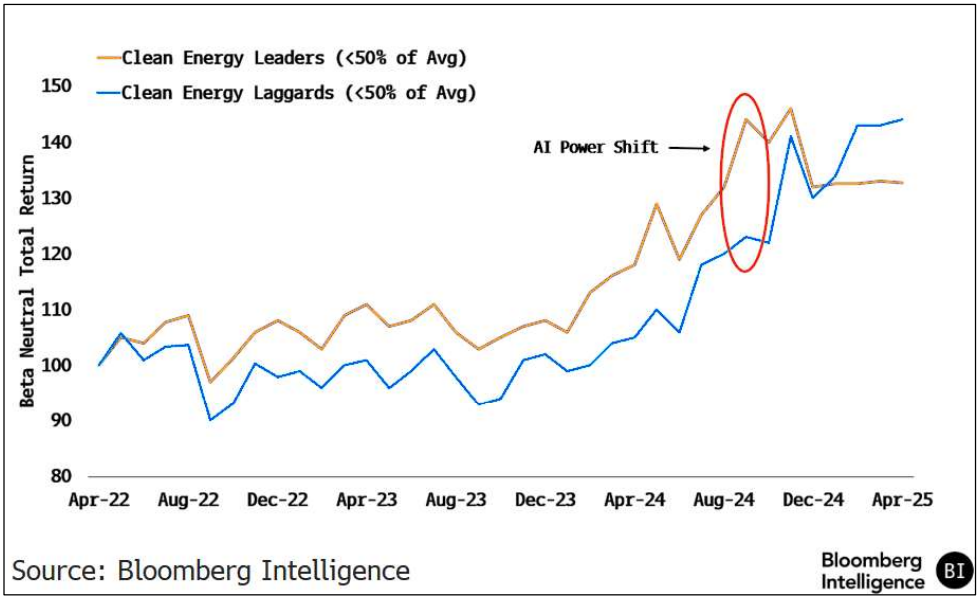
Low-emissions intensity cement producers (top 25%) such as Heidelberg Materials and Holcim have bested higher-intensity peers like Asia Cement and GCC (bottom 25%) by 7.3 points annually over five years and 7.8 points over one, based on an equal-weight analysis of 33 global firms.

Heidelberg Materials stands out for both returns and an ambitious climate target of 400 kg CO2 per ton by 2030 – 36% below the sector average. That's expected to help the cement maker maintain margins comparable to higher-emitter peers as EU allowances are phased out.

The clean-energy push that drove returns in the power sector in recent years appears to be waning, as seen in Figure 20, after a surge in power demand driven by artificial intelligence signaled a return to prioritizing growth. When the AI frenzy took hold, firms began to be revalued higher for their ability to extend the life of coal assets (FirstEnergy) and grow natural gas capacity (NRG Energy), rather than develop clean power capacity.

**Figure 20: Clean Energy Leader vs. Laggard Returns**

BI **Clean energy excess returns cooled as AI frenzy took hold**




## 6.2 Better GHG Management Correlates With Higher Returns

In addition to our sector analysis, a historical review of Bloomberg's environmental (E) and social (S) scores suggests that greenhouse gas management has bolstered performance in the utility, energy and technology industries.

We analyzed E and S scores from July 2017-July 2024, looking at global companies in certain industries with market caps of at least $250 million. Our scores were divided into two buckets: H1 for the best-scoring companies and H2 for the worst, testing for risk, returns and fundamentals across more than 6.5 years. Buckets were controlled for region, size and beta. Some industries like water utilities lacked enough data to analyze separately.

Among utilities, the effect was greatest for integrated electricity peers, where the top half of performers on GHG emissions management had 230 bps higher annualized returns than the bottom half, as indicated in Figure 21. Northwestern Energy and Drax were among the leaders, while Uniper was worse off.

In the energy industry, annual outperformance reached 325 bps for E&Ps and integrated oil stocks with better E scores, based on our back test. Companies with lower maximum drawdowns were also better E scorers. Higher GHG-management scores were tied to annual outperformance of 140 bps, pointing to the importance of pollution-cutting strategies such as net-zero goals.

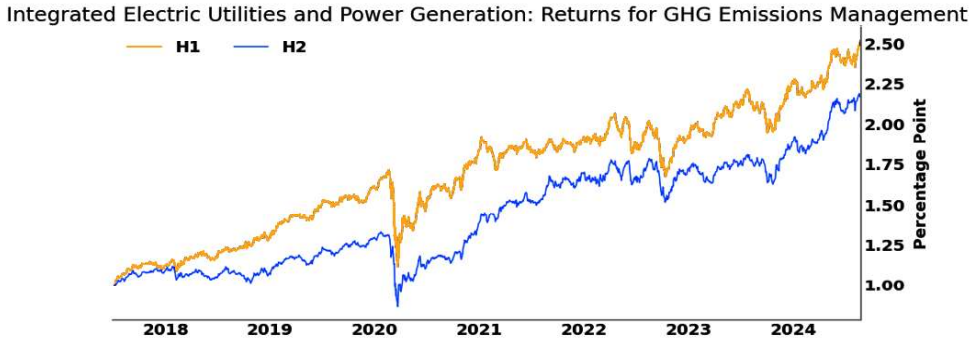
Semiconductor companies with better GHG-management scores outperformed worse-scoring peers by 400 bps annually, our analysis suggests. Returns were likely supported by fundamentals such as improved profitability. Higher scorers in factors such as energy and water management – among the most significant for the industry – posted outperformance of at least 400 bps, highlighting the importance of managing energy costs and risks related to water scarcity and use.

**GHG emissions management is key to utility returns**

**Figure 21: Integrated Utilities: Best vs. Worst ESG Scores**

| | Returns (Annualized) | | Risk (Standard Deviation of Returns) | | Risk-Adj. Returns | | Maximum Drawdowns | |
|---|---|---|---|---|---|---|---|---|
| | More? | How Much? | Less? | How Much? | More? | How Much? | Less? | How Much? |
| Environmental Pillar | N | -3.44% | Y | -0.01% | N | (0.27) | N | -1.14% |
| Climate Exposure | Y | 0.34% | Y | -0.14% | Y | 0.03 | Y | 0.78% |
| GHG Emissions Management | Y | 2.29% | N | 0.32% | Y | 0.15 | Y | 0.23% |
| Water Management | N | -1.02% | Y | -0.33% | N | (0.06) | Y | 3.91% |
| Air Quality | Y | 0.81% | N | 0.03% | Y | 0.06 | Y | 0.75% |
| Waste Management | Y | 0.01% | N | 0.17% | N | (0.01) | Y | 1.12% |
| Social Pillar | N | -4.88% | Y | -0.23% | N | (0.34) | N | -1.32% |
| Occupational Health & Safety Mgmt | N | -4.33% | Y | -0.04% | N | (0.32) | Y | 0.73% |
| Threshold Used | >1% | | <-1% | | >0.1 | | >3% | |

Note: Results in green when results for best vs. worst scores exceed thresholds set




H1 = Companies with the highest scores on metrics being analyzed, H2 = worst, on a country, size & beta neutral basis from July 2017 - July 2024. Ecological impact and other issues couldn't be scored due to limited data or unequal distributions. The ESG scoring methodology assigns a disclosure factor (DF = 0 to 1, 1 = more data) to each company, a measure of the amount of data reported. We limit our analysis, when possible, to those with DFs above a value so that those with little or no data are eliminated. For all issues shown, DF > 0.1

Source: Bloomberg Intelligence

Bloomberg Intelligence

# Section 7. Sector Tailwinds

## AI, Cooling, Insurance Firms Find Alpha in Climate Risk

Long-term needs to enable AI, keep cool and manage catastrophe risk could bolster results for companies addressing climate threats. Stock returns for companies focused on property-and-casualty brokerage (Arthur J. Gallagher), data-center efficiency (Schneider Electric) and heating, ventilation and air conditioning (Trane) have topped peers in recent years.

## 7.1 AI Enablers Log Excess Returns; HVAC Poised for Growth

Though the hype over AI power demand is down, it's far from out, given the number of major projects from Open AI and others expected to come online over the next several years. With power demand expected to increase around 3% a year through 2030 from 0.5% recently due to AI and industrial demand, efficiency should remain a priority, since power costs account for a high proportion of data-center operational expenses.

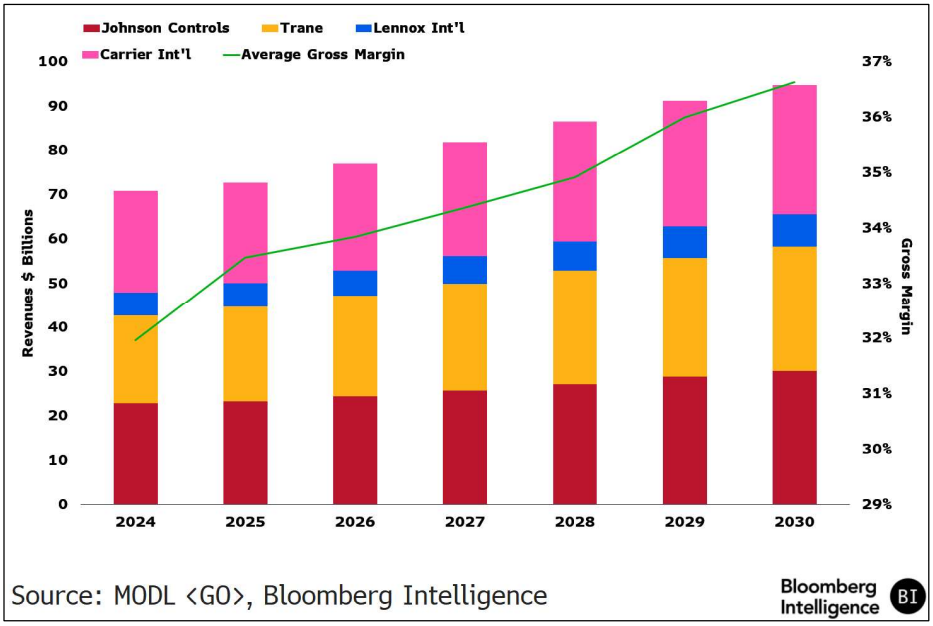
BI's 36-member AI Enablers group – which includes ABB, Schneider Electric and Delta Electronics – slightly outperformed the broader global S&P 1200 Information Techology Index over the year through March (by 1 point) and fared substantially better on an annual basis over three (11 points) and five (17 points) years.

In HVAC, steady growth expectations for the commercial and residential sectors, combined with strong service-contract wins, should help all four companies – Johnson Controls, Trane, Lennox and Carrier – expand margins through 2030, according to investment bank forecasts.

As Figure 22 shows, the HVAC group's total revenue is expected to increase to $94.8 billion from $70.9 billion last year, a 5% compound annual growth rate, driven partly by record global temperatures. Last year was the warmest on record, according to the US National Oceanic and Atmospheric Administration.

**Figure 22: US HVAC Revenue**

BI **HVAC companies' sales and margins are set to rise through 2030**



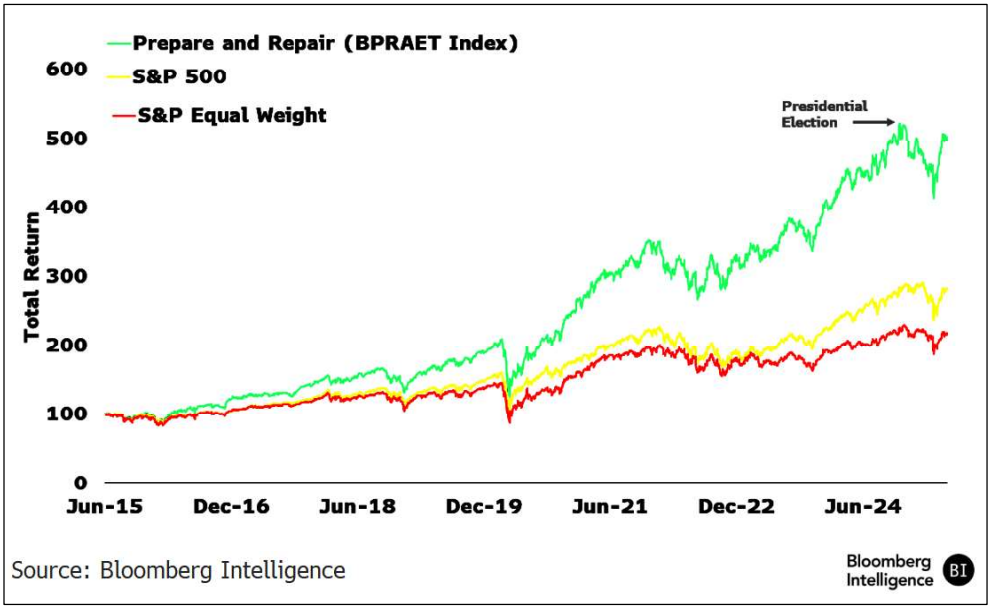

## 7.2 Prepare and Repair Alpha Bounces Back

Climate costs have become a visible and growing part of the US economy, stemming from supply-chain disruptions, heat stress, wildfire pollution and infrastructure planning. The BI Prepare group is composed of companies focused on mitigating such risks, including those involved in safety, engineering, risk management and infrastructure and environmental consulting including Arthur J. Gallagher and Jacobs Solutions. The BI Repair group spans companies focused on rentals, storage, HVAC services, waste removal, building products, materials, and construction items. The fallout from climate events tends to be highly inflationary, locally as well as nationally, as goods and services are diverted to meet the immediate needs of affected areas.

BI's Prepare and Repair combined thematic group of 110 firms, which includes construction companies such as Primoris Services and building-supply retailers like Home Depot, had topped the S&P 500 over three years (by 502 bps), five years (746 bps) and 10 years (653 bps) on an equal-weight basis. Yet after Donald Trump was elected president in November, the group began to lose ground, as government-focused consultants such as ICF International and contractors like Advanced Drainage Systems slumped due to contract uncertainty.

Prepare and Repair has rebounded in 2025, outperforming the S&P 500 by 447 bps for the year through June 3. As seen in Figure 23, it remained above the equal-weight S&P 500 by 453 bps over one year and 9-12 points over three, five and 10 years.

**Figure 23: Prepare and Repair Group vs. S&P 500**




## 7.3 Disaster Recovery, Flood Control to Bolster E&C

Disaster recovery is helping to boost revenues for engineering and construction companies in Japan (CTI Engineering), India (Larsen & Toubro), Argentina (Webuild), the UK (AtkinsRealis), Canada (WSP Global), South Korea (Hyundai Engineering & Construction) and Austria (Strabag) as local governments look to rebuild.

BI **Water projects could boost E&C in Spain, Australia, Austria, the UK and Brazil**

Spanish construction and engineering company Actividades de Construccion y Servicios (ACS) may be well positioned to help the nation recover from October 2024 floods in Valencia. The disaster affected more than 500,000 residences and caused an estimated $21 billion in damages, according to the Bank of Spain. The Spanish government has pledged $18 billion in financial aid for the affected areas, with $5.5 billion in low-cost loans and $4 billion to be used for infrastructure repair. It's also seeking EU assistance.

Ventia Services Group, an Australian infrastructure company with a pipeline of $120 billion in federal projects through 2034, including $45 billion to fund clean-energy projects, may benefit from additional public spending on service contracts for firefighting and emergency support. Ventia already gets 75% of its revenue from the Australian government, and the market for outsourced maintenance service is expected to grow at a 6.4% CAGR through 2028, according to Oxford Economics.

As highlighted in Figure 24, Australia has spent around $136 billion recovering from fires, floods and storms this century, with insurers covering around 40% ($55 billion) and the government providing $32 billion in recent years for disaster assistance, according to the BI Damages Tracker.

In central Europe, Strabag's acquisition of Germany-based WTE, a leading provider of municipal and industrial water-management services, could enable the Austrian infrastructure company to

participate in various regional flood control projects, such as the plan by Austria and Switzerland to invest $2.4 billion to prevent flooding along the Rhine River.

Strabag, which focuses on project development and civil engineering, could benefit from EU funding for Poland's National Recovery Plan, which includes spending to meet urgently needed repairs from recent floods. The plan is expected to raise public spending by 8.2% this year and 8.4% in 2026, according to Euroconstruct.

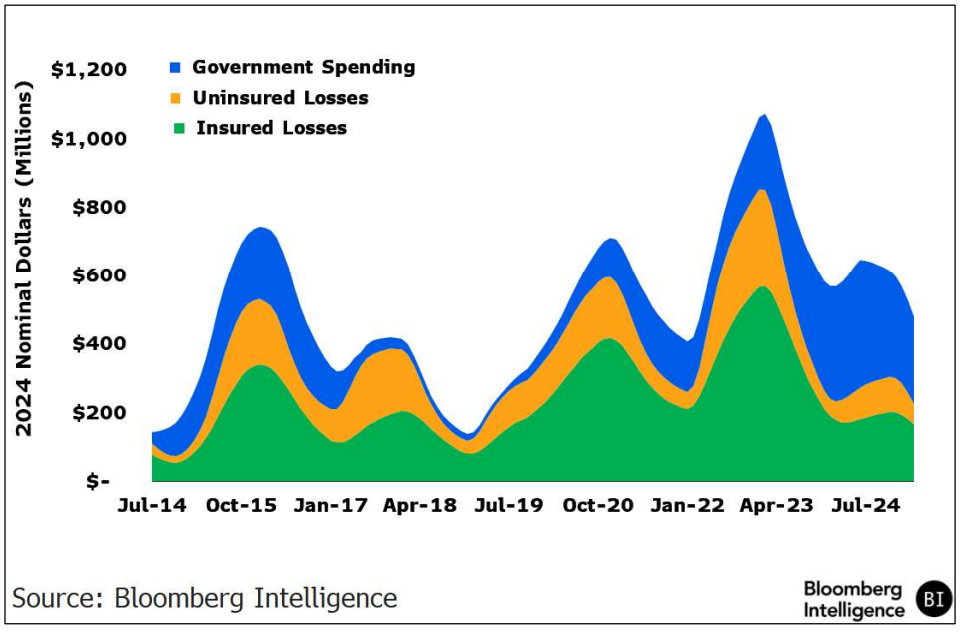
Design, engineering and project management company AtkinsRealis, based in Montreal, has been part of UK government efforts, such as the $325 million Bridgwater Tidal Barrier, to mitigate the economic impact of flooding. The firm receives a significant portion of its revenue from public sector entities, with about 30% coming from UK projects. Consensus sees AtkinsRealis revenue increasing 7% annually through 2029, with a large portion from its grid and nuclear operations businesses.

In Brazil, waterway operator Hidrovias do Brasil is well-positioned for a recovery in grain barge shipping after the shares touched a multiyear low in late February. Severe drought in Brazil – which caused $6 billion in agricultural damages according to Gallagher Re – had slowed demand for the shipping of soybeans and corn and hampered navigation on the Amazon River and its tributaries.

**Figure 24: Australia's Climate Spending by Type**

BI

**Australia's climate spending peaked in 2023**




## 7.4 Insurance Brokers Outran S&P 500 on Higher Premiums

US-focused property-and-casualty insurers, brokers and reinsurers beat the S&P 500 on equal-weight, beta-adjusted returns over the past one, three and five years, as illustrated in Figure 25. Brokers notched the sharpest gain -- a 100% return over the past year, fueled by the sector's high

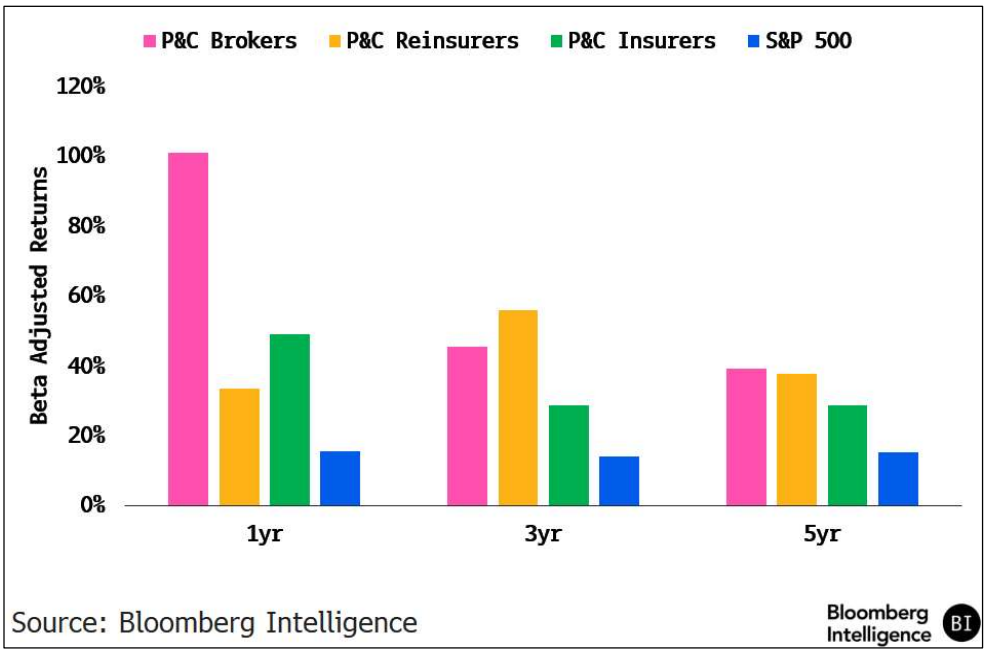
average returns (32%) and low average beta (0.34 on a six-month rolling basis). Brokers – comprising Aon, Brown & Brown, Arthur J. Gallagher, Marsh & McLennan and Willis Towers Watson – also bested insurers and reinsurers over five years as their lower risk, largely fee-based business rode a wave of higher premiums.

The reinsurance industry's recent rally coincided with a significant improvement in the multiple of expected yield-to-expected loss that it's paid to assume multi-peril risk. We find that the reinsurer group tends to perform best on a risk-adjusted basis when multiples exceed the long-term average of 3.57, according to quarterly data from Artemis.bm. The group consists of Everest, Swiss Re, Arch Capital, Munich Re, Hannover Re, SiriusPoint, Fairfax Financial and RenaissanceRe.

Hannover Re and RenaissanceRe have expanded their insurance-linked securities (ILS) businesses in recent years, generating stable returns from packaging risk for third-party clients. Hannover's structured reinsurance and ILS business generated 26% of P&C revenue in 2024 ($5.3 billion out of $20.5 billion), up from 18% in 2023, while RenaissanceRe's purchase of Validus helped increase its third-party capital to $7.81 billion and put it on positive watch at S&P for a one-notch upgrade in the next 12-24 months.

**Figure 25: US-Focused P&C Insurers, Beta-Adjusted Returns**

BI **Brokers outperformed P&C reinsurers and insurers over one and five years**




## 7.5 Catastrophe Bonds Lean on Retail in Risk to Alpha

RenaissanceRe and Hannover Re also may benefit from the longer-run growth of the catastrophe-bond market, which has doubled in size in the past decade. Yet non-traditional investments, including retail, now own 30% of the cat-bond market ($15.3 billion out of $51 billion), an unusually high percentage for credit markets, which could leave the assets vulnerable if this often short-term-oriented cohort decides to look for better returns elsewhere.

The catastrophe-bond market, though still small relative to corporate bonds, has generated steady excess returns for investors over both short and long time frames. That makes it a potentially valuable addition to fixed-income portfolios given its highly uncorrelated (R2 = 0.04) returns over the past decade.

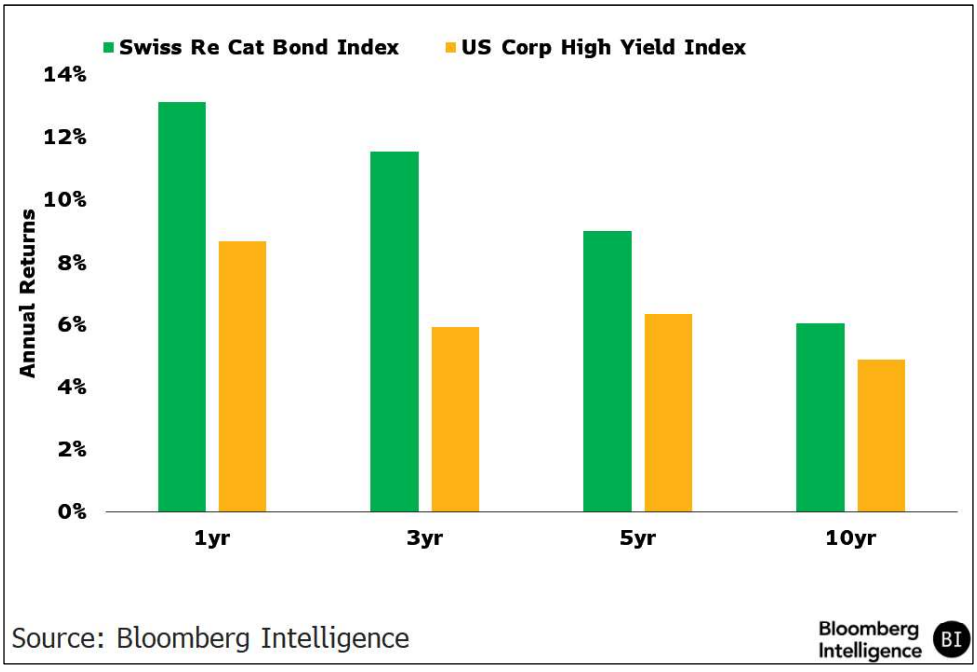
The Swiss Re catastrophe bond index, which tracks the total rate of return for all outstanding US-dollar-denominated cat bonds, has topped the Bloomberg US corporate high yield bond index over one-, three-, five- and 10-year horizons by 4.4, 5.6, 2.6 and 1.1 percentage points, as shown in Figure 26.

The cat-bond market includes a wide variety of issuance related to multi-peril events, focused largely on the asset-heavy US market. Retail and non-traditional investors' share of the market in the Undertakings for Collective Investment in Transferable Securities (UCIT) format rose to 30% in the first quarter from 12% in 2015.

Though these investors have been critical to stabilizing the reinsurance market after participants cut risk in late 2022 following several losing years, a 30% market share may be hard to replace if they decide to look for better returns elsewhere.

**Figure 26: Cat Bond vs. US Corp Bond Total Returns by Period**

BI **Cat bonds topped US high yield returns over all time frames**




## 7.6 Hedge Funds Eyeing Value in Cat-Bond Selection

A few hedge funds have entered the cat-bond market in recent years. The combination of largely uncorrelated market risk and a heavy retail component in the pricing of risk may offer a rationale to be tactically long and short on the sector – by geography and maturity – for the next several

years.

We find a reasonable correlation between cat-bond multiples and returns of the reinsurance sector over the past 10 years, adding a potential opportunity to introduce a broader sector that's involved in both fixed income and equities.

Returns in the catastrophe-bond market are largely driven by pricing, with higher multiplies (yield spread divided by expected loss) allowing investors to weather more costly losses from climate-related events. Cat-bond multiples hit a record high of 6.87 in the first quarter of 2023 but have since fallen back below the five-year average of 3.75, partly due to large inflows from retail investors.

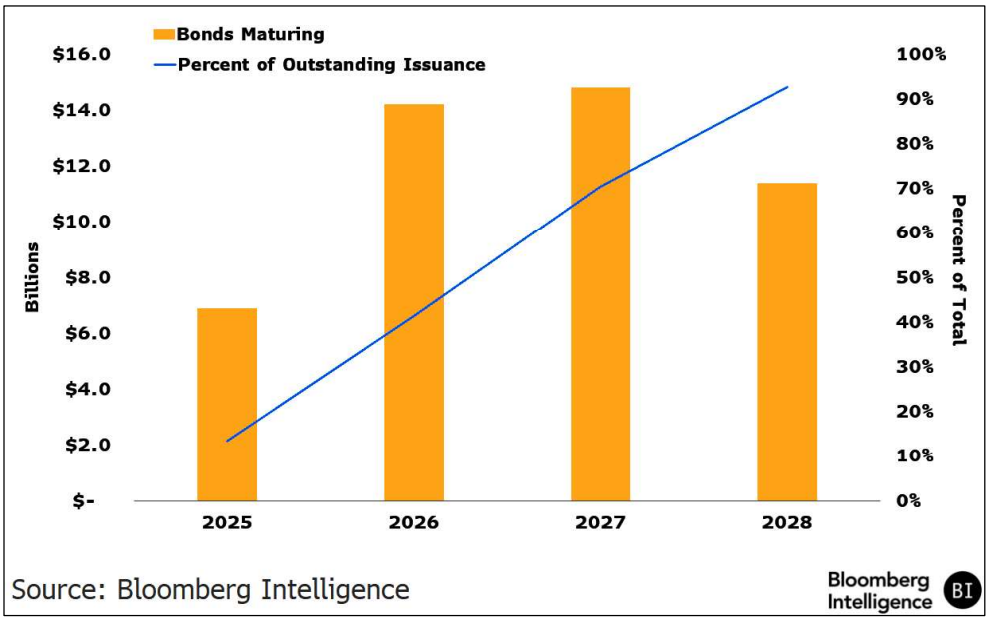
Though many bond markets have maturities that go out to 30 years, the catastrophe-bond market is somewhat unique in that disaster-related risks are difficult to price over long-term horizons. As highlighted in Figure 27, most current cat bonds have maturities of around 2.5 years, according to data compiled by Artemis, with 93% of all outstanding bonds maturing in less than four years.

This shorter-term risk horizon allows pricing to more dynamically reflect the inconsistent risk associated with fires, floods and storms, yet it also can cause disruptions in the bond market if participants seek to reduce exposure.

BI

**More than 90% of cat-bond issuance to mature by 2028**

**Figure 27: Maturity Schedule of Outstanding Cat Bonds**



# Section 8. Sector Headwinds

## Retail, REITs, Health Care Profit Could Be Crimped

Retailers, real estate investment trusts and health-care firms might face slower revenue growth as rising costs from fires, floods and storms begin to shift US consumer behavior. An unexpected $1,600 expense or doubling of insurance costs could curb a consumer's discretionary spending, with potential FEMA funding cuts adding further risk to household financial stability.

## 8.1 Most Households Vulnerable to $1,600 Disaster

BI

**January's drop in US retail sales may have stemmed from fires and winter storms**

While an unexpected $400 expense is manageable for 77% of the lowest-income US households, that falls to 37% for a $1,600 event, according to JPMorganChase Institute. The higher figure, which is likely at the bottom end for out-of-pocket costs to clean up after a disaster, could even be troubling for households in the third quartile. About 29% of those can't absorb a $1,600 cost without pulling back on spending elsewhere.

Retailers like Foot Locker, the Gap, Signet Jewelers and American Eagle Outfitters list climate-related events as risk factors that could adversely affect their businesses. US retail sales fell 0.9% in January, the most in nearly two years, with the Los Angeles fires, storms and severe winter weather cited as possible causes.

Data from the North Carolina Department of Revenue suggest that Hurricane Helene might have shifted regional spending patterns. In hard-hit Buncombe County, home of Asheville, sales fell 9% annually over the October-February period, while unaffected Mecklenburg County, home of Charlotte, recorded a 3% sales increase.

Disasters can have a significant impact on spending, as shown by an analysis of credit-card data surrounding Hurricane Harvey. As seen in Figure 28, customers kept more cash on hand in the three months following the storm, according to JPMorganChase Institute, which looked at spending changes for 487,000 credit-card holders. Outlays shifted toward home and auto repair and away from elective health-care procedures, possibly benefiting Home Depot and AutoZone and hurting HCA Healthcare and Tenet Healthcare.

Increases in spending came at the expense of mortgage payments, down 12%, and auto loans and student loans, which fell 9% each. This could hit companies such as Ally Financial and Navient.

REITs such as Camden Property Trust and Kimco Realty Group are affected by fires, floods and storms due to increases in insurance and expenses for maintenance and repair. Multifamily insurance premiums have soared in recent years, according to a study by the Federal Reserve Bank of Minneapolis. One respondent said that 50% of the overall inflation in operating expenses since 2020 can be explained by insurance, which rose to 14% of opex in 2024 from 6% in 2020.

Commercial insurance is a growing concern, as highlighted in Figure 29, with total US premiums written rising by 46% since 2020 to $67 billion from $45 billion, according to the NAIC.

The elimination of FEMA's relief programs could further accelerate shifts in consumer-spending patterns, since any large, unexpected costs would likely need to be put on credit cards. The agency has provided $37 billion in direct short-term funding to homeowners and renters over the past 20 years.

Residents of Texas (who got $5 billion), Louisiana ($9 billion) and Florida ($5 billion) might be most exposed to such a shift in credit-card balances, with companies like American Express, Discover Financial Services and Capital One possibly benefiting.

**Figure 28: Changes in Spending Following Hurricane Harvey**

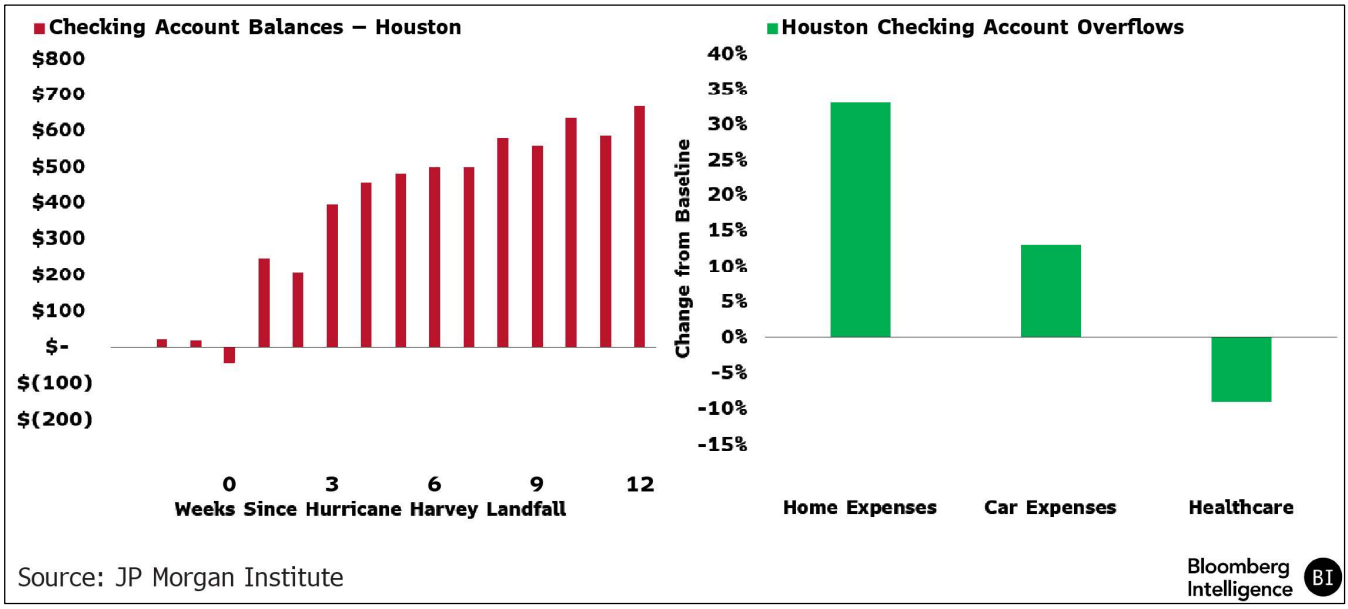
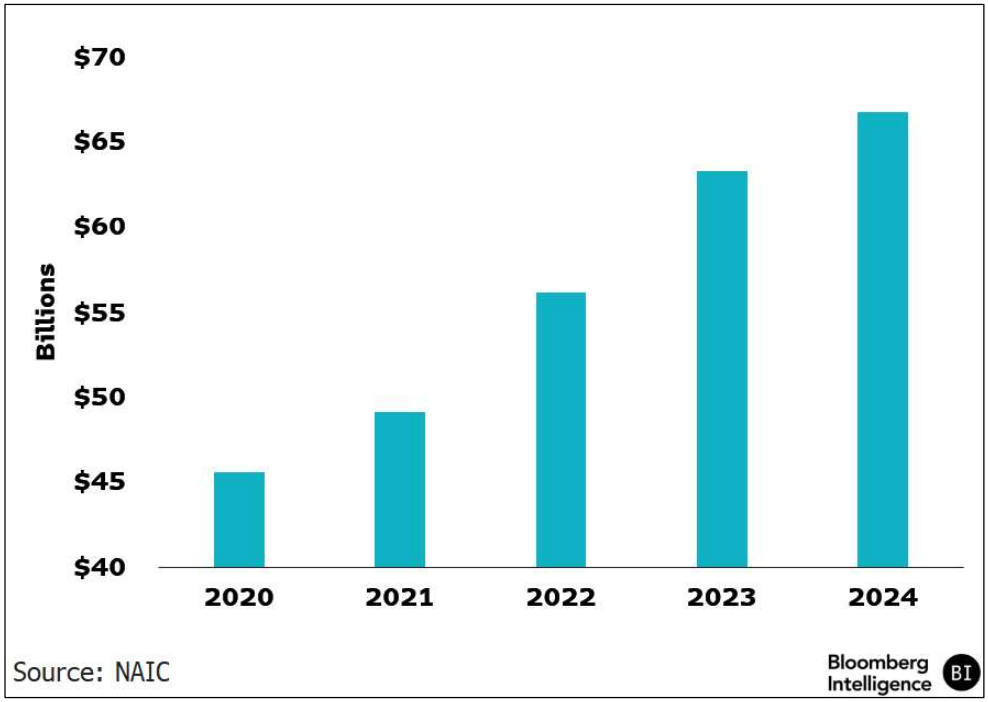


**Figure 29: Commercial Multi-Peril Premiums Written**

BI **Commercial multi-peril premiums jumped 46% from 2020-24**




## 8.2 Health Insurers, Hospitals Stressed by Climate's Health Toll

Health insurers like Elevance and hospital operators including HCA Healthcare could face increased weather-related stress, with wildfire smoke alone seen leading to $36 billion in US health costs annually. Climate change could cause an additional 250,000 deaths a year by 2030 from malnutrition, malaria, diarrhea and heat stress, according to the World Health Organization.

The rise in emergency-room visits and hospitalizations from extreme heat will likely increase US health care expenses. In Florida, where HCA has more than a quarter of its hospitals, the state Health Department reported 8,159 heat-related emergency-department visits in the summer of 2023, costing over $26 million, using the state's low-acuity mean charge of $3,204 per adult visit as a proxy. The Centers for Disease Control's daily heat-related hospitalization rate reached 705 visits per 100,000 on Aug. 1, 2024, for Health and Human Services Region 4, which includes Florida, as shown in Figure 30.

Los Angeles early this year experienced some of the world's worst air quality as wildfire smoke blanketed the area, leading to surging respiratory cases, elevated mortality risk and estimates of up to $56 billion in insured losses. Studies link wildfire smoke exposure to long-term health impacts such as pregnancy complications, dementia risk and premature death, contributing to as much as $36 billion in annual US health-related costs.

Such hazards aren't limited to the West. In 2023, smoke from Canadian wildfires increased asthma-related ER visits 17% across the US, with an 82% surge in New York state alone. As wildfire

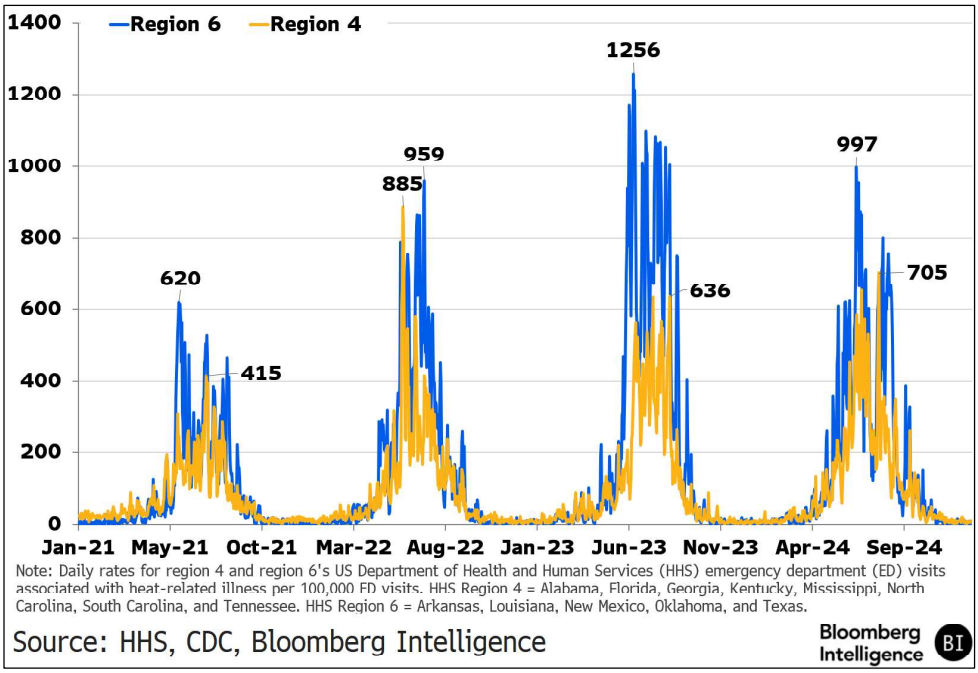
seasons grow longer and smoke reaches farther, financial pressure is likely to intensify for health systems, employers and insurers, such as Elevance and UnitedHealth.

Climate change also increases the incidence of vector-borne diseases as carriers' ranges expand and reproduction accelerates, a trend expected to intensify, according to the UN's Intergovernmental Panel on Climate Change. In Pakistan, higher temperatures and shifting rainfall have contributed to a surge in malaria. Reported cases quadrupled after the 2022 floods from a year earlier. Incidence rose another 59% in 2023, according to the World Malaria Report, as flood conditions created new mosquito breeding grounds.

Warming temperatures have also led to disease migration, expanding the regions where certain illnesses are typically found. In the US, climate change contributed to a near doubling in Lyme disease cases from 1991-2018, according to the Centers for Disease Control.

**Figure 30: Heat-Related Daily Hospitalization Rate, 2021-24**

BI **Region 4 heat-related hospitalizations peaked in 2024**

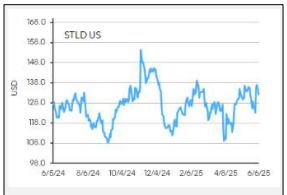


# Section 9. 10 Companies to Watch

## Addressing Climate Concerns May Be Industry Catalyst

Revenue growth could accelerate for companies focused on cooling, power infrastructure, P&C brokerage, AI efficiency and bond assurance. Producers of the lowest-intensity steel, cement and oil & gas also may gain as carbon border adjustments and tariff concerns play out in the months and years ahead.

## 9.1 Steel Dynamics Eyes Payoff From Growth Projects




| Market Cap (USD Bn) | | 19.98 |
|---|---|---|
| Share Price (USD) | | 133.56 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 9.84 | 13.57 |
| 2025E | 9.59 | 13.92 |
| 2026E | 12.21 | 10.94 |

* Bloomberg Consensus

**$18.7 Billion**
Estimated 2025 revenue

**12.2 Million**
Projected 2025 steel production in tons

**Outlook:** Steel Dynamics may be forced to shift its focus to operations to support shareholder rewards amid heightened end-market demand uncertainty, since cash flow has decreased. With spending on growth projects winding down, overcoming three years of operational problems at Sinton and starting up an aluminum-rolling mill will be key drivers of free cash flow. Risk is higher, given the aluminum mill is the Fort Wayne, Indiana-based company's first foray into the sector. Within the steel operations, moving further downstream with the start of four value-added coating lines provides a cushion.

**Climate Impact:** Steel Dynamics uses recycled steel as the primary input to their production process, reducing emissions by 75% relative to the global average per ton. The company is a leader in low carbon production globally and benefits from a far simpler supply chain, since it doesn't have to source metallurgical coal or iron ore from abroad. Doing so became problematic during the Covid-19 pandemic and resurfaced as an issue amid recent tariff discussions.

## 9.2 Equitrans Gave EQT Different Appalachia Scale


| Market Cap (USD Bn) | | 33.01 |
|---|---|---|
| Share Price (USD) | | 56.39 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 1.61 | 35.02 |
| 2025E | 3.53 | 15.99 |
| 2026E | 5.04 | 11.19 |

* Bloomberg Consensus

**$8.3 Billion**
Consensus 2025 revenue

**2.16 Trillion**
Cubic feet of natural gas sales expected in 2025

**Outlook:** Significant Appalachian Basin acreage – set to rise after the Olympus Energy deal closes early in the third quarter – can power operational improvements for EQT, one of the largest independent natural gas producers in the US. Higher gas prices should aid fundamentals, and we see a tighter backdrop in 2025. Reducing leverage remains a central focus for the Canonsburg, Pennsylvania-based company, especially after it rose due to the Equitrans Midstream deal, which closed in July 2024. Financial flexibility is paramount amid an uneven landscape ripe for consolidation, and newly merged rival Expand Energy has the size to compete most forcefully with EQT.

**Climate Impact:** EQT is one of the lowest emitters of methane from natural gas production in the US, purchasing Equitrans Midstream in 2024 to ensure that its entire well-to-terminal emissions meet the same high environmental standards. Methane has 82 times the climate impact of carbon dioxide, making it a high-cost adder for US LNG shipments looking to enter the EU under its expanded carbon border adjustment program.

## 9.3 Heidelberg Leads Carbon Capture, Kicks Buyback


| Market Cap (EUR Bn) | | 31.88 |
|---|---|---|
| Share Price (EUR) | | 180.00 |
| Earnings Per Share* (EUR) | | P/E |
| 2024A | 11.90 | 15.13 |
| 2025E | 12.96 | 13.89 |
| 2026E | 14.52 | 12.40 |

* Bloomberg Consensus

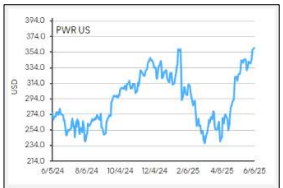
**€1.2 Billion**
Share buyback set for second quarter

**36%**
Lower cement emissions than sector average targeted by 2030

**Outlook:** Heidelberg Materials' carbon capture, utilization and storage technology, combined with digitalization and a focus on portfolio optimization, look set to sustain the German company's profitability and produce a leaner structure. More than €1.3 billion has been recovered from lower taxes, reduced financing costs and other items in the past three years, while the push to better utilize assets and monetize less-profitable operations comes amid a focus on M&A in the US. Input-cost inflation has subsided, with lower energy prices. The flagship carbon-capture project in Norway, now completed, makes Heidelberg the first company in the sector to offer net-zero cement and concrete products, which could allow it to raise premium margins. A €1.2 billion share buyback kicks off in the second quarter.

**Climate Impact:** Heidelberg Materials has one of the most ambitious carbon-emission intensity targets globally, looking to have 36% lower emissions per ton of cement produced than the sector average by 2030. Reductions from carbon capture and storage facilities in Norway and Germany are expected to help the company maintain margins comparable to high-emitting peers as free carbon allowances from the EU are phased out.

## 9.4 Quanta's Focus on Recurring Work Paying Off




| | | |
|---|---|---|
| Market Cap (USD Bn) | | 51.97 |
| Share Price (USD) | | 361.35 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 8.97 | 40.28 |
| 2025E | 10.35 | 34.92 |
| 2026E | 11.75 | 30.75 |

* Bloomberg Consensus

**$27 Billion**

Consensus 2025 revenue

**60%**

Share of electric-power infrastructure services market

**Outlook:** Quanta Services' focus on smaller capital and maintenance projects is driving greater earnings stability than when it prioritized larger-scale infrastructure projects. The Houston-based company is exposed to rising investments in the electrical grid, communications networks and renewable-power generation, which could offset a slowdown in pipeline work. Acquisitions have recently been a greater focus than share buybacks, reflecting the company's preference for growth over capital returns.

**Climate Impact:** Quanta is the largest electric-power infrastructure services provider with 60% market share. The company benefits from fire-mitigation programs in California and may generate additional revenue from its largest customer, Duke Energy, which announced $2.9 billion in damage to transformers, broken poles and downed power lines from Hurricane Helene.

## 9.5 Gallagher Could Sustain EPS Growth into 2025


| | | |
|---|---|---|
| Market Cap (USD Bn) | | 80.87 |
| Share Price (USD) | | 328.76 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 10.09 | 32.58 |
| 2025E | 11.09 | 29.65 |
| 2026E | 13.53 | 24.30 |

* Bloomberg Consensus

**$14 Billion**

Estimated 2025 revenue

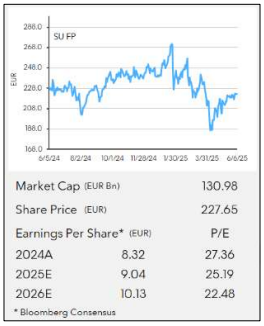
**6-8%**

Guidance for 2025 organic revenue growth

**Outlook:** Arthur J. Gallagher is among the few insurance brokers with global reach and the potential to serve larger accounts. Still, it primarily competes with smaller brokers and is well positioned due to superior capabilities. The company, based in Rolling Meadows, Illinois, has expanded margin via cost control, strong execution and organic growth. Ebitdac margin improvement should be modest, but consistent, with high-single-digit organic gains. Organic growth is slowing in 2025; management expects 6-8%. Gallagher continues to pursue M&A with a strong potential revenue pipeline according to management.

**Climate Impact:** Gallagher Re is one of the largest P&C brokers, benefiting from a doubling in the cost of commercial multi-peril insurance in recent years. P&C brokers like Gallagher Re also offer risk-management and claim-settlement services that could remain in demand as clients look to minimize tail risks to their businesses.

## 9.6 Schneider Profit Upgrade Chances Getting Tougher




| Market Cap (EUR Bn) | | 130.98 |
|---|---|---|
| Share Price (EUR) | | 227.65 |
| Earnings Per Share* (EUR) | | P/E |
| 2024A | 8.32 | 27.36 |
| 2025E | 9.04 | 25.19 |
| 2026E | 10.13 | 22.48 |

* Bloomberg Consensus

**€40.5 Billion**
Consensus 2025 sales

**21.4%**
Expected 2025 Ebitda margin

**Outlook:** Schneider Electric's backlog continues to expand, given the French company's strong sales alignment with structurally growing market segments and ability to meet greater demand for energy efficiency and data centers. Performance is on track to sustain peer-busting organic growth, margin gains and strong cash generation in 2025. Demand for systems offerings remains robust, driven by data centers and grid infrastructure, offsetting weakness in discrete automation and residential-building markets, which may recover in 2H. Still, record margin and the leveling-off of supply-demand imbalances in the medium-voltage market make profit upgrade opportunities more difficult this year, especially as tariffs and currency are set to pressure near-term profitability.

**Climate Impact:** Schneider's recent purchase of Motivair, a specialist in liquid cooling, combined with its sensor and cabling businesses is seen as critical to ensuring AI-related power demand is met in the most efficient way possible. According to the IEA, AI power growth is expected to increase global CO2 emissions by 1 gigaton over the next 10 years due to the limited ability of renewable energy to keep up.

## 9.7 Assured Guaranty Well Positioned for Growth


| Market Cap (USD Bn) | | 4.11 |
|---|---|---|
| Share Price (USD) | | 85.42 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 7.10 | 12.03 |
| 2025E | 8.17 | 10.46 |
| 2026E | 7.39 | 11.57 |

* Bloomberg Consensus

**58%**
Share of US public-finance insurance market

**$78 Billion**
GO bonds insured by Assured

**Outlook:** Assured Guaranty generated $872 million in sales last year, with assurance accounting for 94% of revenues. The company works with municipalities to provide credit enhancement products, covering principal and interest for both new issues and those already trading in the secondary market. The firm has maintained $10 billion of claims-paying resources to protect investors and has a 26x Net Exposure / Claims-Paying Resources ratio as of Q1 2025.

**Climate Impact:** Assured Guaranty, the largest insurer of financial obligations for the US public-finance sector, appears well-placed for growth if local-government debt issuance increases due to federal funding cuts. Roughly 8.3% of issuance is insured, yet that might grow if states like North Carolina and Texas must replace federal disaster funds by issuing new general-obligation debt.

## 9.8 Builders FirstSource Benefits From Nationwide Reach


| Market Cap (USD Bn) | | 12.71 |
|---|---|---|
| Share Price (USD) | | 111.63 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 11.56 | 9.66 |
| 2025E | 8.34 | 13.38 |
| 2026E | 9.84 | 11.35 |

* Bloomberg Consensus

**$16.3 Billion**
Projected 2025 revenue

**45**
US states with operations

**Outlook:** Builders FirstSource is a leading supplier and manufacturer of building materials in the US, operating in 45 states. The Dallas-based company offers factory-built roof trusses, wall panels and engineered wood products. Its bundled solutions revenue, which includes labor as a service, grew to $2.7 billion in 2024, or 16.5% of the $16.4 billion total. Revenue is forecast to slip to $16.3 billion in 2025 before returning to growth in 2026-27 as margins recover back above 31%. The company's digital-solutions platform offers shorter design cycles, construction efficiencies and waste reduction at every stage from design to completion.

**Climate Impact**. The company's national reach and broad local-market expertise may help it benefit from post-disaster rebuilding efforts.

## 9.9 Tetra Tech's Defense Wins Make Up for Lost Contracts


| Market Cap (USD Bn) | | 9.55 |
|---|---|---|
| Share Price (USD) | | 35.59 |
| Earnings Per Share* (USD) | | P/E |
| 2024A | 1.26 | 28.25 |
| 2025E | 1.47 | 24.16 |
| 2026E | 1.55 | 22.96 |

* Bloomberg Consensus

**$4.3 Billion**
2024 revenue

**$5 Billion**
2025 defense-contract wins

**Outlook:** Tetra Tech is a global leader in providing consulting and engineering services in the fields of water, environment and sustainable infrastructure. The Pasadena, California-based company's revenue, which reached $4.3 billion in 2024, rose 12% year over year in the second quarter. Tetra Tech operates under two segments: Government Services Group (GSG) accounts for about 45% of revenue, with the remainder coming from Commercial/Industrial Group (CIG). The company's $5 billion in defense-contract project wins in 2025 are expected to more than offset the $1.1 billion in awards lost due to the shutdown of USAID.

**Climate Impact:** The company's revenue growth opportunities are focused on flood-protection efforts for the US Defense Department and Army Corp of Engineers, municipal water treatment plants in Texas and the UK, and sourcing water and power transmission for commercial data centers.

## 9.10 Yunnan Aluminium to Thrive Amid Green Energy Push


| Market Cap (CNY Bn) | | 54.10 |
|---|---|---|
| Share Price (CNY) | | 14.71 |
| Earnings Per Share* (CNY) | | P/E |
| 2024A | 1.27 | 11.58 |
| 2025E | 1.93 | 7.63 |
| 2026E | 2.26 | 6.50 |

* Bloomberg Consensus

**5.3 Million Tons**
Planned 2026 bauxite capacity

**75%**
Lower emissions per ton than the average Chinese aluminum producer

**Outlook:** Yunnan Aluminium, China's largest green aluminum producer, is set to gain from the nation's ambitious decarbonization goals. Rising aluminum prices and improved operating rates could fuel revenue growth, while profit could be bolstered by an alumina price plunge. Its margin could expand further if the company doubles bauxite capacity to 5.3 million tons by 2026 as planned. With over 80% of its energy coming from renewable sources, Yunnan remains competitive amid escalating carbon costs for the sector. The company lifted its dividend payout ratio to 32% from 20% and plans to keep it above 30%.

**Climate Impact:** Yunnan uses hydropower to produce aluminum with less than 25% of the emissions per ton generated on average by its Chinese peers (2.4 tons CO2 per ton vs. 12.4 tons). The government's efforts to reduce sector emissions by capping production at 45 million tons a year leaves little room for industry growth given the 43 million tons of output in 2024, but it could provide a tailwind for Yunnan relative to domestic peers given the company's best-in-class emissions profile.

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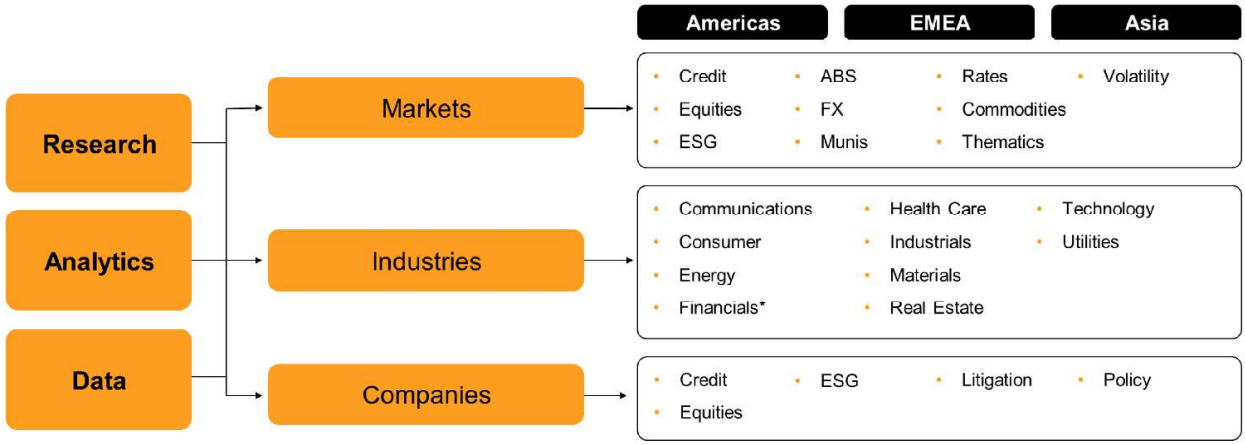

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