CLIMATE CHANGE & INVESTING

Investing in a climate-changed economy

SUMMARY

The climate is changing, bringing risks to businesses. Companies are beginning to move beyond thinking of climate as a corporate social responsibility or a regulatory concern. Firms are starting to develop plans to manage climate risk and harness climate opportunities. There is a growing pool of sustainable finance capital being invested in companies that have integrated climate change into their risk management and financial planning.

Investors who develop strategies to navigate this shift and invest in climate-smart companies will succeed. Through internal transparency and by seeking transparency in investments, investors can begin to understand climate's material risk on their business.

Forward-thinking investors (and the companies they invest in) that have a climate strategy, coupled with strong governance, accountability, and reporting, will get ahead of their competitors. This paper will help demystify climate change for the investor community and support decision-useful risk management and reporting.

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Mantle translates climate change for businesses. We provide leading expertise in climate risk, resiliency and low-carbon solutions.

Our advisory services assist clients to understand, assess and develop climate-smart solutions. This includes both internal strategies and external reporting to manage climate risks and harness opportunities.

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CLIMATE RISKS

UNDERMINING THE SECURITY OF INVESTMENT PORTFOLIOS

Climate impacts are accelerating. They are causing economic harm and this will get much worse.

Risk management practices have not kept up with this threat, undermining the security of investment portfolios.

THE BUSINESS IMPACT

PORTFOLIOS THREATENED BY ACCELERATING CLIMATE CHANGE

In 2019, we saw a string of reports confirming climate change impacts are accelerating and arriving faster than scientists previously expected. Some recent examples include: glaciers melting, oceans warming, permafrost degradation, heatwaves killing coral, and the risk of the domino effect of tipping points all happening faster than previously expected. Adding to these reports was the September release of the United Nations' Intergovernmental Panel on Climate Change's (IPCC) special report on the Ocean and Cryosphere in a Changing Climate, finding that the oceans are warming and rising faster than previously thought.

In the report, the IPCC increased their projected end-of-century sea level rise (worst-case, business-as-usual) scenario to 61-110 centimetres. Besides rising seas, the IPCC reported:

- Once-a-century high-water coastal floods will happen every year by 2050.
- Marine heatwaves killing fish stocks will happen 20 times more often by 2100.
- 70% of infrastructure in the Arctic will be at risk from permafrost melting by 2050.
- Mid-latitude glaciers will shrink by 80%, threatening the water supply of millions from glaciers in the Andes and Himalayas.

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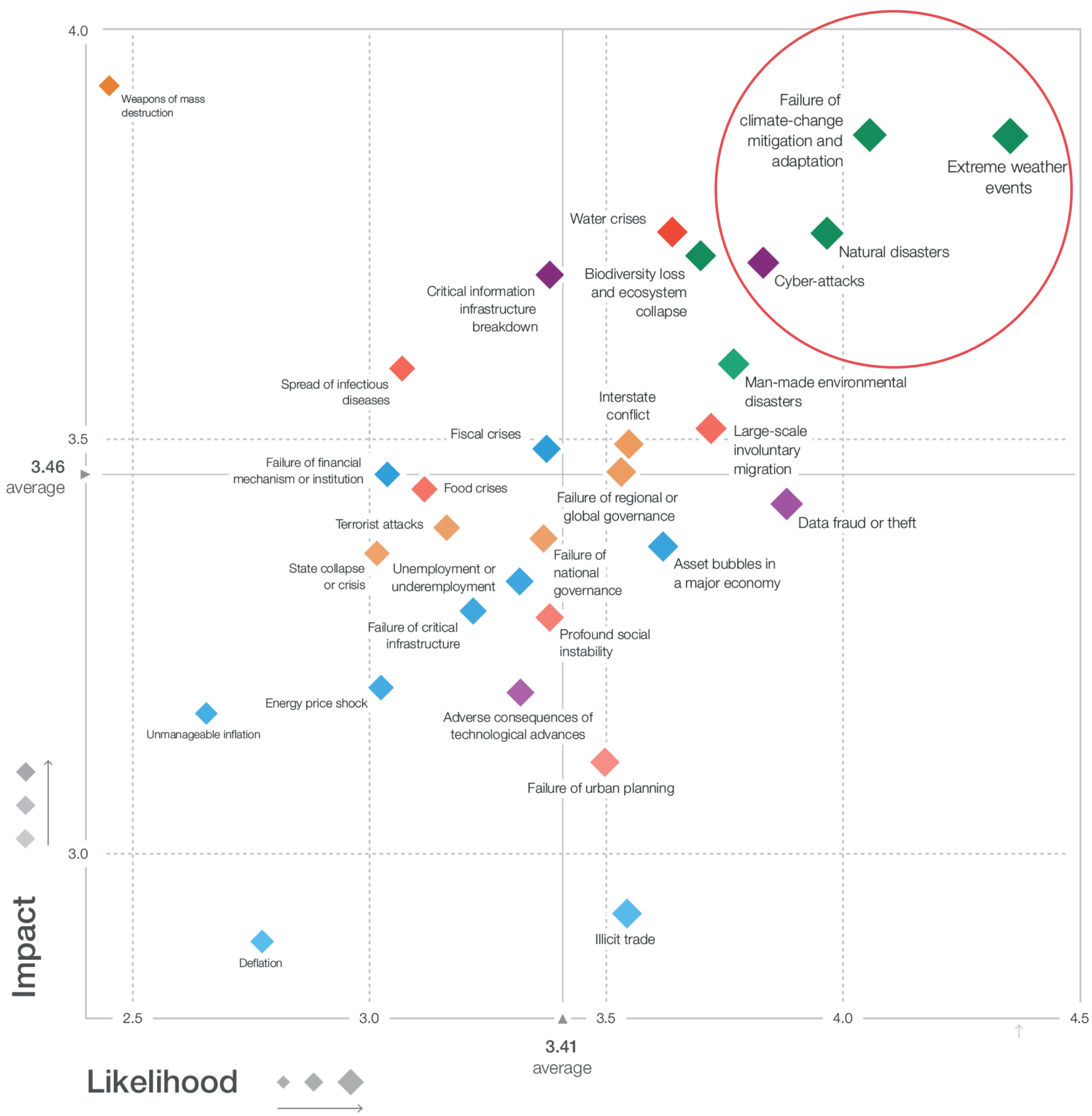
TOP ECONOMIC RISKS ARE CLIMATE RISKS

The World Economic Forum's Global Risk Report 2019 has again listed environmental and climate-related risks at the top of threats to the global economy. In the report, extreme weather events, failure of climate change mitigation and adaptation, and natural disasters top the list in likelihood and impact, ahead of cyber-attacks, state collapse, and terrorist attacks.

Would you feel confident investing in a large company if they did not have a robust cyber security strategy? With climate change being a potentially bigger risk, a company's climate strategy should be even more critical. Increasing climate impacts are putting investments in jeopardy. Forward-thinking companies are starting to incorporate climate risk into their financial planning and risk management processes. Those who are not, should act quickly.

THE GLOBAL RISKS LANDSCAPE 2019



From the World Economic Forum, Global Risk Report 2019, Figure I: The Global Risks Landscape 2019, pg. 5

SCENARIO DEVELOPMENT

GLOBAL AGREEMENT SIGNALS MARKET CHANGE

The IPCC's special report Global Warming of 1.5°C reveals 2°C of warming will cause significant environmental and economic damage. To minimize this damage, warming needs to stay below 1.5°C, which requires cutting global carbon emissions significantly by 2030 and achieving net zero emissions by 2050. The increase in global economic damage between 1.5°C and 2°C is significant; a 3°C world becomes highly altered. Without major cuts to emissions by 2030, the planet will be locked into temperature rises that put investment value at significant risk. These dates are driving mitigation efforts around the globe.

In 2015, world leaders pledged to keep emissions below 1.5°C above pre-industrial levels as part of the Paris Agreement. To date, national governments have only pledged to cut emissions to limit warming to 2.9 °C and actual actions are putting the world on track for an average of 3.2°C of warming, according to the non-profit Climate Action Tracker. To stay within relatively safe limits, emissions must decline by 7.6% every year, between 2020 and 2030, warns the UN Environment Programme's Emissions Gap Report 2019.

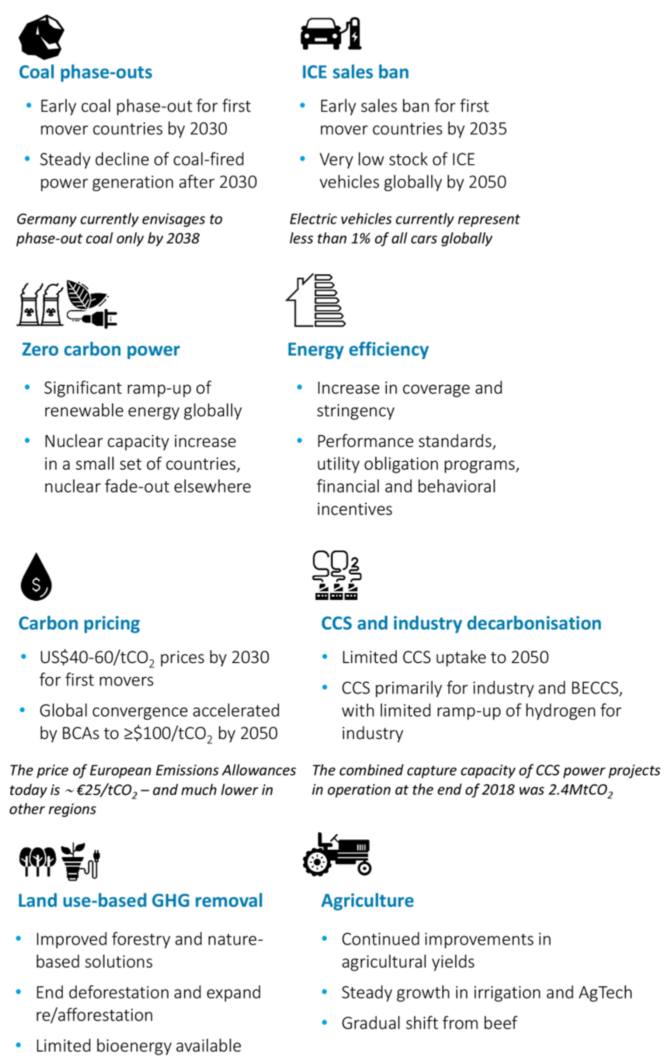
POLICY RESPONSE WILL ALTER MARKETS

Multiple expert bodies, such as the IPCC and the International Energy Agency (IEA), have produced models of warming scenarios (e.g., 1.5°C, 2°C, and +2°C of warming) and transition pathways (e.g., smooth or abrupt). Different models assume different technological and policy pathways. Investors should consider these various scenarios and how they might affect their portfolios.

The UN-supported Principles for Responsible Investing (PRI) published a policy paper outlining the Inevitable Policy Response that may be implemented to avoid dangerous climate change. In the next decade, major policy shifts will likely occur to phase out coal, ban internal combustion engines, raise carbon taxes, deploy carbon capture technology, significantly scale up renewables and nuclear, tighten energy efficiency, and institute major land-use and agricultural changes, according to the PRI. These polices will have market altering effects and will lead to considerable impacts for unprepared businesses.

"Companies that don't adapt will go bankrupt without question," said Mark Carney, Governor of the Bank of England.

PRI'S INEVITABLE POLICY RESPONSE



From the Principles for Responsible Investment, The Inevitable Policy Response: Policy Forecasts, pg. 15

FINANCIAL SECTOR'S RESPONSE

THE CHANGING REPORTING LANDSCAPE

Climate change is a phenomenon. It is not a discrete risk factor or even a set of risk factors.

Simply put, climate change will fundamentally alter the economic system and thus has a material impact on investing.

KEY TOOL FOR INVESTORS

TCFD IS CHANGING THE REPORTING LANDSCAPE

In 2017, the G20's Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) released recommendations for climate reporting. The recommendations call for businesses to provide 11 climate-related financial disclosures structured around governance, strategy, risk management, and metrics and targets.

Core elements of recommended climate-financial disclosures

From the Recommendations of the TCFD, June 2017, Executive Summary, Figure 2.

Governance: The organization's governance around climate-related risks and opportunities.

Strategy: The actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

Risk Management: The processes used by the organization to identify, assess, and manage climate-related risks.

Metrics and Targets: The metrics and targets used to assess and manage relevant climate-related risks and opportunities.

PRESSURE GROWS TO DISCLOSE CLIMATE RISKS

Since its launch, the TCFD has quickly become industry best practice. As of September 2019, support for the TCFD has grown to 898 organizations. The UN-partnered Principles for Responsible Investing (PRI) made TCFD-based reporting mandatory in 2020 for PRI signatories (over 480 investors representing US $42 trillion). The Bank of Canada's 2019 Financial System Review listed climate change as one of the main risks to Canada's financial system due in part to a lack of climate-risk reporting. Canada's central bank specifically referenced the need for the universal uptake of TCFD. Mark Carney, Governor of the Bank of England, warned that major corporations have two years before climate reporting becomes mandatory.

CLIMATE DISCLOSURE IS UP, BUT ADDITIONAL ACTION URGENTLY REQUIRED

In June 2019, the TCFD released a report documenting the growing momentum behind climate-related financial reporting. The disclosure of climate risks is up since 2016, with the average number of disclosures increasing from 2.8 to 3.6 per company, according to the TCFD's 2019 Status Report.

75% of companies disclosed five or fewer of the 11 recommended disclosures and only four percent disclosed 10 of the 11 disclosures, noted the report.

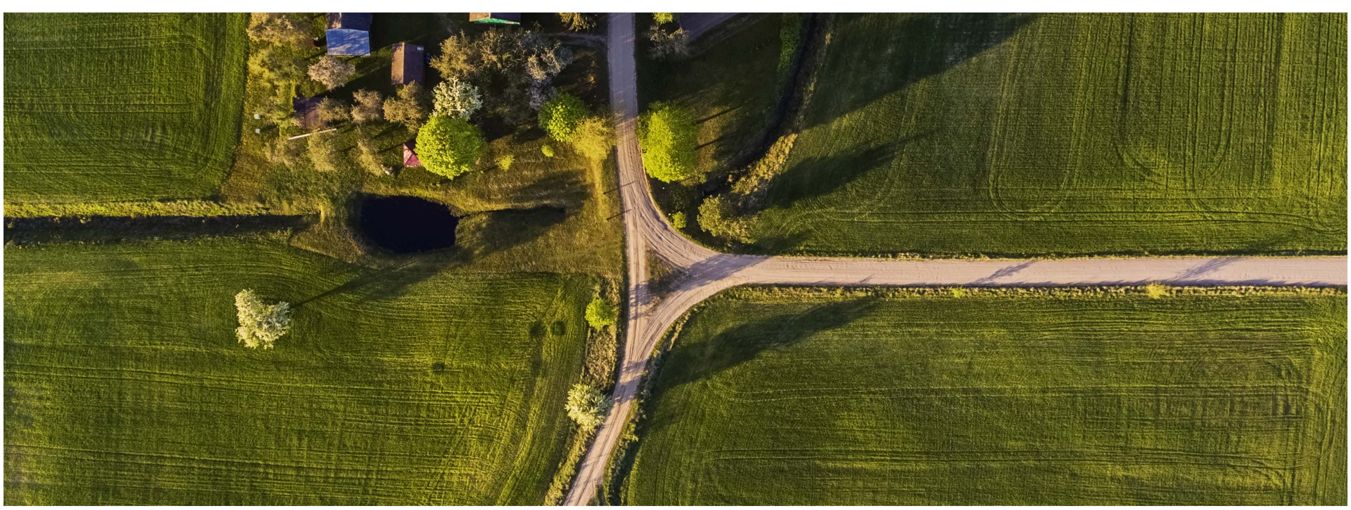
These findings prompted the TCFD to conclude "given the speed at which changes are needed to limit the rise in the global average temperature" more companies need to consider the impact of climate change on their business and disclose "decision-useful" climate-related financial information.

OPPORTUNITIES OUTWEIGH RISKS

The non-profit CDP (formerly the Climate Disclosure Project) recently reviewed 215 large multi-national companies and found they reported US $1 trillion at risk from climate change over the next five years. The risk comes from physical climate impacts and risks associated with legal and policy changes, such as carbon pricing.

While the costs are staggering, the climate opportunities from low-emission products/services, shifting consumer preferences, and increased availability of capital for low-carbon products/services far outweigh the short-term costs. The companies, representing nearly US $17 trillion in market capitalization, reported some US $2.1 trillion in climate-related opportunities, according to CDP's Global Climate Change Analysis 2018 report.

"These findings align with what economists have been highlighting for over a decade, that the potential negative impacts of climate change outweigh the costs to mitigate them, and that there are significant opportunities to be realized as part of the transition," the CDP report concludes.



INVESTOR RESPONSE

ACTIONS AND DEMANDS GROWING RAPIDLY

Increasingly, large investors are setting ambitious targets, making demands around divesting from heavy-polluting industries and taking climate action.

INVESTOR TARGETS

- The Zurich Insurance Group announced it will no longer underwrite or invest in companies that generate at least 30% of their revenue from the oil sands.
- HSBC, Europe's largest bank, announced it will no longer fund new projects in the oil sands.
- BNP Paribas, France's largest bank, announced it will cease financing projects that are primarily transporting oil and gas.
- New York State Common Retirement Fund – the third largest pension plan in the United States – published their Climate Action Plan to prepare the US $210 billion fund for a transition to a low-carbon economy.
- The European Investment Bank (EIB), the EU's financing department, will end financing for traditional fossil fuel projects by 2021.
- The Net-Zero Asset Owner Alliance – responsible for managing more than US $2.4 trillion in investments – committed to carbon-neutral investment portfolios by 2050.

INVESTOR DEMANDS

- The Institutional Investors Group on Climate Change (IIGCC) – 319 investors with more than US $28 trillion in assets - called on world governments to scale up climate action to achieve the Paris Agreement's goals.
- The Investor Agenda – 515 institutional investors managing US $35 trillion in assets – urged governments to step up action to tackle climate change and achieve the Paris Agreement's goals.
- The Climate Action 100+ launched in 2017 to ensure the world's largest corporate carbon emitters take critical action to align with the Paris Agreement's goals.

Meanwhile, the Central Banks and Supervisors Network for Greening the Financial System – a coalition of 34 central banks and supervisors – have committed to act on climate-related financial risks.

CLIMATE -ALIGNED PORTFOLIO

ALIGNING WITH A 2°C OR LOWER FUTURE BY 2030

Align your business with a 2°C or lower future by 2030 using minimum standards, enhanced risk modeling, and product innovation.

SUPPORT YOUR PORTFOLIO'S FINANCIAL STABILITY

In order to help your business and investments become climate smart, Mantle recommends aligning your portfolio with a 2°C or lower future by 2030. This will line up your business with what the science recommends is needed, and will support your portfolio's financial stability in a climate-adjusted world.

INVESTOR GOALS

HOW TO CHANGE INVESTMENT PROCESSES AND PRODUCTS

Investors who want to adjust their portfolios to minimize climate risk should look for companies who understand climate risk and opportunity and can provide meaningful climate information. These companies will be well-placed to keep the trust of their shareholders and attract additional debt and capital.

Investors applying a climate lens are increasingly using a suite of tools to integrate climate into their investment decisions.

EVOLVING MINIMUM STANDARDS

Investors may select or establish minimum standards and apply them across investment products, third-parties, asset classes, sectors or regions. As a decision-making framework, minimum standards are designed to be responsive to new information as actual scenarios and pathways unfold.

Minimum standards have two components: criteria and consequences. Criteria refer to specific expectations for assets to qualify as "buy", "hold" or "sell". These criteria may be related to governance structures, targets and metrics, carbon intensity, or protections for supply chains. Consequences might include selling securities or assets that fail to meet these criteria. Both components of minimum standards can be phased in and increased in ambition over time.

Existing methodologies such as the Climate Action 100+ may be used by funds to communicate expectations around sustainable assets and climate solutions for managers. Funds may not support companies that do not meet and are not making progress toward minimum standards.

ENHANCED CLIMATE RISK MODELLING

Investors may build internal capacity to assess real assets and to support risk methodologies for new index products. Demanding and accessing corporate climate disclosures, following the TCFD recommendations, may provide the data needed to improve your climate risk modeling.

A key tool in climate risk modelling is using scenario analysis. Scenario analysis can drive value across business functions but it is also one of the most challenging of the TCFD recommendations for any organization to implement. Climate-related financial risk is difficult to quantify because:

- **Adding on climate risk does not work**: Climate change impacts tend to enhance existing risks and opportunities and are thus inter-connected with other issues.
- **Reliance on the past is misleading**: Climate change is rendering historic data and experiences unreliable when looking ahead to the future.
- **Details are still uncertain**: The shift towards a lower-carbon economy has been credibly substantiated, but there is uncertainty around the exact timing, magnitude and pathway.

Scenario analysis provides a way to explore what the business environment might look like under different climate and decarbonization scenarios and integrate this information into company functions from operations to strategy.

Scenario analysis allows for:

- Different pathways under different climate scenarios, insights about potential regulations, industry standards, technology, and other changes.
- Integrated analysis of climate impacts in the economy and multiple sectors with feedback loops.
- Analysis that is more sophisticated than simple stress testing over longer time frames. Though scenario analysis does not provide predictions, it does provide foresight, which is much broader and potentially more valuable to a company's climate resiliency and flexibility.

NEW INVESTMENT PRODUCTS

New investment products may include best-in-class index products (e.g. low-carbon index, or an index built on minimum standards), and direct or co-investment opportunities in climate infrastructure and real estate.

Global sales of green bonds have more than quadrupled in five years, noted a recent report by S&P Global. Green bonds are used to finance a wide array of environmentally friendly projects like sustainable agriculture or clean transportation projects. In 2018, US $167.6 billion was issued in green bonds, according to the Climate Bonds Initiative.

Investors could look to develop new fixed-income instruments for climate-transition products – a category different from traditional green investments. This instrument would help high-emission industries access capital to reduce their carbon emissions – a group traditionally excluded in standard green bond offerings. Fixed income transition products could help drive down emissions while providing another way for investors to support the shift to a low-carbon economy.

Furthermore, asset managers can create pools of green and transition-linked fixed income products so that institutional-scale investors, who are increasingly looking for low-carbon investments, can access them.

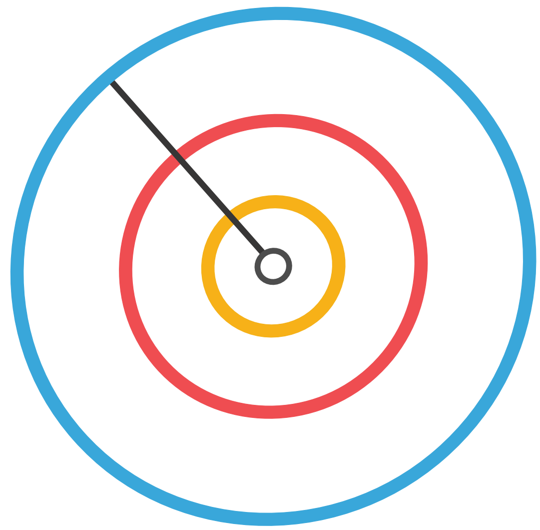
CONCLUSION

Investors backing companies that disclose how climate change impacts their business will have a big advantage over those who do not, because the pressure to disclose is only going to grow. Similarly, investors who disclose their own climate risk and opportunity will also be well placed.

There is a developing ecosystem for sustainable financial services, and combined with the urgency of climate change, there is no reason why investors should wait to act. Investors gambling that sustainable finance and the movement to disclose on climate risk and opportunity are passing fads will miss out on opportunities in the shift to a low-carbon and resilient economy.

climate risk & opportunity strategy

Shining a light on climate risk and opportunity



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our services

EDUCATE
Deliver expert training and bring the latest developments and current data to boards, executives and employees.

IDENTIFY
Identify climate-related risks and opportunities unique to your business.

STRATEGIZE
Provide solutions and strategies to build your corporate resiliency.

EQUIP
Prepare your teams to make smart business decisions and seize climate-related opportunities.

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our expertise

CLIMATE EXPERTS

Our multidisciplinary team has unparalleled climate-related experience in law, politics, engineering, business, finance and accounting. Our deep expertise in financial services helps clients respond to investors' questions and seize opportunities.

DISCLOSURE LEADERS

We help train and work with companies to understand and comply with mandatory and voluntary reporting requirements, such as the Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

CLIENT FOCUSED

We help educate clients and build internal capacity, benchmark to competitors, understand internal gaps, strategize solutions, leverage supporting data and tools, and prepare climate-related financial disclosures.

EMPLOYEE SUPPORTIVE

We bring our passion to our work and engage our colleagues and clients with a collaborative and radically responsible approach to problem solving and self management.

we can help

We look forward to helping your company gain a competitive advantage as we transition to a climate-resilient economy.

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