



Perspectives on climate change

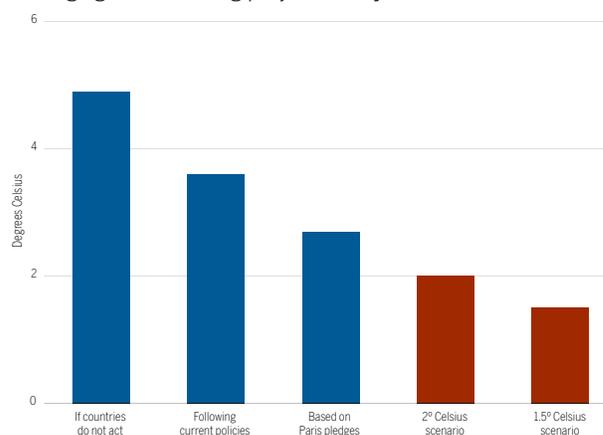
KEY POINTS

- The 2015 Paris Agreement marked the first truly global accord on the need for a lower-carbon world, and reinforces the importance of various investment implications.
- Climate change and related policy movements toward a low-carbon future may present an array of near- and long-term risks and opportunities.
- With the announcement of recommendations from the Task Force on Climate-related Disclosures (TCFD), we expect scenario analysis to become the standard for investors in evaluating companies' strategies in the face of a changing climate.
- Climate change considerations are embedded in our environmental, social, and corporate governance (ESG) integration process.
- Potential low-carbon investment opportunities may be found within the electricity, transport, energy efficiency, and water- and resource-management industries.

With an international transition to a lower-carbon economy underway, many teams at Wellington are focused on our responsibility to help our clients understand the potential effects of climate change on their investment portfolios.

At the December 2015 United Nations Climate Change Conference in Paris, all 197 participating countries reached a landmark agreement to reduce greenhouse gas emissions. By the time the Paris Agreement took effect in November 2016, 168 of 197 countries had ratified their commitment. This accord represents the first truly global agreement to address climate change. The main goal is to prevent the average global temperature from rising more than 2 degrees Celsius (3.6 degrees Fahrenheit) above preindustrial levels by 2021. A cap on this seemingly slight increase is significant, as most scientists believe that global warming beyond this point would have catastrophic consequences. **FIGURE 1** shows the potential rise in global temperatures under different collective scenarios. Unless preventive measures like those outlined in the Paris Agreement are taken, the average global temperature is projected to rise by more than 4 degrees by the beginning of the next century.

FIGURE 1
The world expected to get significantly hotter without preventive measures
Average global warming projections by 2100



Data as of 8 December 2015 | Source: Climate Action Tracker, data compiled by Climate Analytics, ECOFYS, New Climate Institute, and Potsdam Institute for Climate Impact Research

We have no "house view." While designated teams are accountable for the design and implementation of each of our investment strategies, at a firmwide level the views of our investment professionals can vary, sometimes significantly. We believe this diversity of thought strengthens our investment processes by creating a robust "marketplace of ideas."



Alan Hsu

Equity Portfolio Manager
and Global Industry Analyst,
Energy, Renewables, and Utilities

“Companies have begun to embrace renewable energy as a means to decarbonize their energy supply and gain electricity-cost certainty.”



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THE PARIS AGREEMENT AND INVESTMENT IMPLICATIONS

Key elements of the Paris Agreement include:

- Establishing greenhouse gas (GHG) emission reduction targets for the majority of the world’s countries*
- Setting a target peak for GHG emissions with a target date that is “as soon as possible” and setting a post-2050 target date for carbon neutrality
- Requesting progress reports every five years from participating countries
- Encouraging developed countries to commit US\$100 billion in financing each year post 2020 to assist developing countries with their transition to a low-carbon economy

While there is still much to be resolved in terms of implementation of these targets and questions around the monitoring and enforcement of countries’ target emissions reductions, the Paris Agreement signaled a clear global desire to move toward renewable energy and energy efficiency. We expect an increase in policies and market environments that favor more carbon-friendly businesses. We anticipate policymakers will produce clearer road maps and emission-trading schemes in the future that we believe will have investment implications for carbon-intensive industries. There will likely be long-term challenges for sectors such as oil and gas, metals and mining, and carbon-intensive power generation that investors should consider.

We expect that the Paris Agreement will translate into country-level policy changes aimed at addressing carbon emissions and encouraging mitigation strategies. France, for example, has introduced a legislative measure to improve climate-risk disclosures from asset owners. Such regulatory uncertainties, coupled with changing energy market dynamics and improving technology, are referred to as “transition risks.”

Despite the absence of universal policies, more companies are seeing the low-carbon transition as a competitive opportunity. Businesses that invest in resource efficiency across the supply chain will likely gain competitive advantages as more local and regional governments introduce various penalties and incentives, including carbon pricing. A proactive strategy should benefit a company’s bottom line and reduce the cost of adhering to future regulation. Many US entities appear to be realizing this, as the Trump administration’s decisions to withdraw from the agreement and deregulate federal climate requirements have galvanized US-based companies and investors to commit to the climate goals outlined in Paris.

At the same time, investor commitment to address climate risk in their portfolios has led to renewed momentum behind disclosure-focused initiatives including the Carbon Disclosure Project and the Task Force on Climate-related Financial Disclosures (TCFD) as means of communicating and comparing resilience strategies across portfolio companies.

*Reduction targets are intended to limit GHG emissions to a range that will keep the average global temperature from rising more than 2 degrees Celsius (ideally “well below” that), with a goal to “pursue efforts to limit” any temperature rise to just 1.5 degrees Celsius above pre-Industrial Revolution levels.

SCENARIO ANALYSIS AS THE EMERGING STANDARD

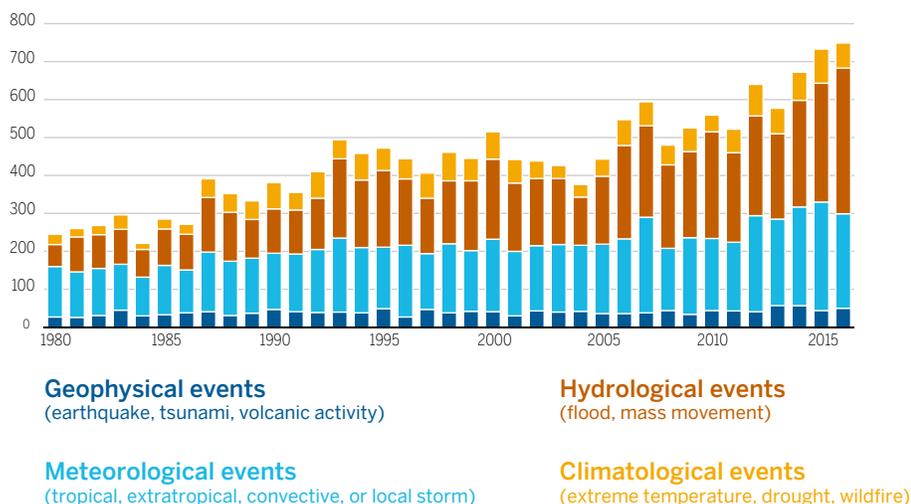
Following the recommendations of the TCFD released in June 2017, we expect scenario analysis to become the market standard for investors evaluating companies' responses to climate change. The TCFD defines scenario analysis as "a tool for companies to consider, in a structured way, potential scenarios that are different from business as usual and to evaluate how their strategies might perform under those circumstances."¹

In our view, effective disclosures show that a company recognizes that climate-related uncertainties present risks to its business and seeks to create shareholder value across all potential scenarios. These disclosures provide an opportunity to show shareholders that the company has a strategy in place to adapt to various potential outcomes.

CLIMATE CHANGE: RISKS AND OPPORTUNITIES

Climate change and related policy movements toward a low-carbon future may present an array of near- and long-term risks and opportunities. While the Paris Agreement was a step in the right direction, climate change could still pose significant long-term risks to companies in many industries, especially those exposed to extreme weather events that lead to supply chain disruptions. The risks of unplanned disruptions due to severe weather events, generally referred to as "physical risks," are becoming more frequent and acute. **FIGURE 2** shows that the frequency of extreme weather events and natural catastrophes has been on the rise for decades, a trend climate science suggests will continue given the expected trajectory of global emissions. At its core, we view climate change as being about greater volatility and less-predictable outcomes.

FIGURE 2
Climate-related events have been on the rise



As of December 2016 | Source: Munich Re, NatCatSERVICE (2017)



Tom Levering

Global Industry Analyst,
Utilities and Infrastructure

“We expect an increase in policies and market environments that favor more carbon-friendly businesses.”



Scott St. John, CFA

Fixed Income Portfolio Manager

“The long-term nature of climate risk makes it difficult to price, so we stay cognizant of a bond’s time to maturity and the issuer’s geographic exposure (are its physical assets susceptible to rising sea levels or wildfires, for example). We need to consider how those risks may change over time.”

¹Task Force on Climate-related Financial Disclosures Final Report FAQs.



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Climate change implications are not just long-term considerations. There are also many questions regarding current and near-term effects that need to be addressed, such as:

- Which coastal real estate is exposed to fat-tail climate change risks?
- Is disaster insurance mispriced?
- Which municipal bonds hold climate change-related risks?
- What is the impact of extreme temperatures and weather volatility on various commodities and supply chains?

CLIMATE RISK AND ESG INTEGRATION

Climate-change considerations are a core part of our ESG integration process, which we aim to incorporate in Wellington's client portfolios.

ESG research

Our ESG Research Team provides our investment professionals with proprietary ESG ratings on companies, incorporating a range of ESG factors, including climate-change topics such as greenhouse gas emissions reduction targets, renewable energy use, and water scarcity management. Our team also works closely with our industry analysts to analyze sector-specific ESG risks including climate-change implications for more carbon-intensive industries.

Engagement with company managements

Our ESG Research Team and investors engage with hundreds of company management teams on ESG topics each year. We believe that engaging with the companies we invest in plays a critical role in helping to identify, understand, and appropriately consider ESG risks such as climate change. As part of this process, our firm speaks with companies to gauge their exposure to climate-related events, assess management's awareness of this topic, evaluate their risk-management approach, and encourage adoption of best practices. Sample engagement questions include:

- How does the board evaluate risks associated with climate change?
- Are there individuals at the company who are specifically responsible for addressing issues associated with climate change?
- What is the company doing to mitigate its own GHG emissions? Are there reduction targets and, if so, how did the company arrive at them?
- How does the company consider climate-related opportunities such as product development and innovation?
- Does the company conduct regular scenario analyses to understand the risks that climate change poses to the business?



Prachi Shah, CFA

Global Industry Analyst, Retail

“The long lead times for traditional consumer supply chains can make some companies vulnerable to a less-predictable climate. I believe online retail supply chains may be more resilient, with flexible inventory positions, allowing for timely adjustments.”

To help investors gauge exposure to transition risks, companies are increasingly reporting on direct emissions, for example, from corporate facilities and operations, referred to as Scope 1 emissions, and indirect emissions from electricity, heating, and cooling uses, referred to as Scope 2 emissions. However, reporting on Scope 3 emissions — which refers to all indirect emissions within the supply chain and broader product life cycle and distribution activities — is less common. When we ask companies about their intention to adopt the TCFD’s recommendations, we share our views about the purpose and spirit of the guidelines. The disclosure should serve as evidence that a company has a risk-management process in place to help it handle an array of climate risks.

ASSESSING CLIMATE RISKS TO OUR BUSINESS

Wellington Management is committed to addressing the environmental impact of our operations and raising internal awareness of sustainable practices. However, as an investment manager with a global client base, we believe that our greatest exposure to the effects of a changing climate resides in our clients’ portfolios.

In December 2017, we signed the Statement of Support for the TCFD recommendations. Starting in 2018, we are participating in the voluntary disclosure of the Principles for Responsible Investment’s (PRI’s) annual reporting framework along the TCFD’s guidelines. Through engagement and proxy voting, we are encouraging our portfolio companies to adopt the TCFD’s recommendations, so that we can make more informed investment decisions on behalf of our clients. Finally, we continue to develop investment strategies that aim to address both the physical and transition risks associated with climate change.

74% of asset owners who are PRI signatories view climate change as a long-term risk.²



Carolina San Martin, CFA
Director, ESG Research

“The TCFD framework aligns with our belief that climate change is a strategic business issue that can impact long-term financial performance.”



²UN Principles for Responsible Investment Annual Report, 2017.



Investing in a low-carbon economy

The Paris Agreement further solidifies the global push toward a low-carbon economy and enhances the attractiveness of sustainable investments such as low-carbon electricity, low-carbon transport, energy efficiency, and water- and resource-management companies. Our portfolio managers and the ESG Research Team see a range of potential investment opportunities emerging as efforts to address climate change continue to advance.

Renewables

With renewable energy becoming mainstream, the day is quickly approaching when wind and solar may no longer be thought of as “alternative” power sources. Industry watchers expect that more than 50% of incremental electricity capacity will come from renewable sources over the next five years.³ While this shift presents potential opportunities for renewable energy providers, it may pose challenges for incumbent power generators.

Energy storage

The current inability to store electricity causes significant inefficiency on power grids and heating and cooling systems. Large-scale energy storage has the potential to fundamentally alter the energy sector and generate value. Utility-scale batteries could enable wind farms and solar arrays to store electricity when demand and costs are low, and dispatch it when demand and costs rise.

Electrification

Across the transportation spectrum, vehicles and their supporting infrastructure are transitioning from fossil-fuel combustion to electric power. The worldwide shift of personal and commercial vehicles, railways, and cargo ships to electric presents a significant climate-risk mitigation opportunity, as mobile sources produce 14% of global emissions.⁴ In anticipation of rising demand, vehicle manufacturers have committed significant capital to the research and development of electric vehicles. Ultimately, however, the overall mitigation effect of low-carbon transport depends as well on changes in the global fuel mix and improved battery capacity.

Energy efficiency

Companies in every sector are seeking ways to reduce energy usage and the associated operational costs. Energy efficiency solutions such as light-emitting diode (LED) lighting and advanced heating and cooling systems have gained commercial traction as a result. The manufacturers of these technologies that help lower customers’ carbon footprint along with their energy bills should be well positioned.



Bradford Stoesser

Global Industry Analyst,
Real Estate

“I believe that investors should consider the costs of climate change in the terminal value of long-dated assets located in places susceptible to increasing climate risk.”

³Bloomberg New Energy Finance, June 2015.

⁴“Climate Change 2014,” Intergovernmental Panel on Climate Change.

Infrastructure

Even if the guidelines set out in the Paris Agreement are met, the world will still need to make additional investments in infrastructure design to adapt to a changing climate. Local governments will likely require flood-management installations including floodwalls, bioswales, and permeable pavements to help minimize the effects of flooding following extreme precipitation events.

A warmer planet is already increasing water-scarcity concerns. By 2030, global water demand is set to surpass supply by 40%,⁵ yet countries have underinvested in water management for decades. New infrastructure, including pipelines, plumbing, meters, and sanitization facilities, should become critically important in many areas of the world.

Innovative water management solutions can also help reduce water consumption, ultimately lessening the strain on existing water infrastructure.

Real estate

How and where structures are built are two key considerations for climate-aware investors. Commercial and residential real estate constitutes approximately 40% of energy consumption.⁶ New methods and technologies used in building construction and system design are lowering the carbon footprint. Some studies have shown that “green” buildings that offer better air and light quality help boost worker productivity.

Climate change will also impact the cost of real estate in places that are susceptible to volatile weather patterns. We expect that higher insurance premiums and infrastructure improvements needed to protect communities from climate change will alter the building-cost paradigm and may lead to new population migration patterns.

Green bonds

Finally, the rise of green bonds has the potential to serve as an opportunity for investors to finance the transition to a lower-carbon economy. The proceeds from the green bond market, which reached US\$90 billion in 2016,⁷ are earmarked for environmentally friendly projects, such as renewable energy, climate adaptation infrastructure, and energy efficiency. Experts have estimated that it will take US\$93 trillion worth of investments to meet the targets for addressing climate change.⁷ Green bonds are one way for private pools of capital to contribute to the financing of this transition. We believe this is a growing market with potential to serve as a meaningful tool to help reach the goals of the Paris Agreement. ■



Brendan Swords, CFA

President and Chief Executive Officer

“We see it as our fiduciary duty to take into consideration issues that may impact the immediate or long-term financial performance of our clients’ portfolios. Climate change is one of many themes that falls into this category.”



⁵UNESCO. UN World Water Development Report 2015, Water for a Sustainable World.

⁶Energy consumption by sector, International Energy Agency, 1 November 2017.

⁷Global Green Bonds Outlook for 2017, HSBC Global Research, 11 January 2017.



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