



White Paper

# The risks and realities of climate change for corporations

Unlock climate resilience  
fast across your business



# It's time to face the business realities of climate change

**The impact of climate change is becoming increasingly evident, as extreme weather events, rising temperatures and shifting rainfall patterns take effect around the world. What was once considered an end-of-century risk is now creating very near and present challenges.**

In 2024 alone, the U.S. experienced at least 24 separate billion-dollar-plus weather and climate disasters. In fact, the last five years (2020-2024) represent five of the top six years for the most billion-dollar disasters.<sup>1</sup> These included Hurricane Helene, which disrupted the operations of two high-purity quartz manufacturers that are key dependencies in the global semiconductor supply chain.<sup>2</sup>

The occurrence of extreme rainfall is also on the rise. In Hong Kong, torrential rain in May 2024 led to the highest rainfall recorded in an hour since records began. Although it is difficult to directly link individual rainstorms to climate change, scientists agree that global warming makes these extreme events more likely.<sup>3</sup>

Floods have also hit the headlines in parts of Australasia and Central Europe in recent years. One, in July 2024, disrupted the aluminum supply of German automaker Porsche, causing the company to issue a profit warning and sustain a 3% hit to its share price.<sup>4</sup>

And the most direct consequence of climate change – extreme heat – threatens human livelihoods and productivity levels. During the pre-monsoon season of 2024, large regions of Asia experienced temperatures well above 40°C (104°F) for many days,<sup>5</sup> with one part of Delhi reaching 49.9°C (121.8°F) – the Indian capital's highest temperature on record.<sup>6</sup>

Wherever you're located, your business needs to take measures to protect its physical assets and operations from the financial and human resource impacts of climate change. Plus, by proactively tackling climate change and embracing sustainability, you have the potential to ensure that your firm's money is protected and can work harder to maximize growth, as well as contribute to a greener future.

But only with a clear picture of the climate risks your specific organization faces can you make effective plans to adapt, continue to operate in the short term and keep growing your business in the long term.

Climate risks, however, are markedly different from any risk most firms will have measured or managed before. With so much at stake, modeling the financial impact of climate risk requires a deep understanding of the underlying science and the ability to translate that knowledge into complex, credible models – models that will enable your firm to protect, and ultimately enable its money and operations to work harder.

**More than half of business leaders say they struggle with understanding ESG reporting standards.**

Source: FIS, Global Innovation Research, 2024

<sup>1</sup> National Centers for Environmental Information, November 2024 National Climate Report

<sup>2</sup> Financial Times, Global chipmaking hit as Hurricane Helene disrupts quartz mining, October 5, 2024

<sup>3</sup> South China Morning Post, Why was Hong Kong pelted with torrential rain on Saturday and is global warming to blame? May 4, 2024

<sup>4</sup> Financial Times, Porsche warns on profits as flooding hits aluminium supplier, July 23, 2024

<sup>5</sup> World Weather Attribution, Climate change made the deadly heatwaves that hit millions of highly vulnerable people across Asia more frequent and extreme, May 14, 2024

<sup>6</sup> CNN, Brutal nighttime temperatures give Delhi residents little respite from India's searing heatwave, June 21, 2024



## Are you prepared to model climate risks?

Every year, climate change brings more severe, unpredictable and frequent extreme weather events. To unlock a clearer understanding of your firm's financial exposure to the impacts, it's crucial to incorporate forward-looking climate projections under different warming scenarios.

No company can afford to overlook the potential ramifications of climate-related events for its daily operations, its strategic suppliers and long-term business strategy. Plus, as climate reporting becomes mandatory, the largest corporations must not only assess but also disclose the associated financial risks.

Climate risk modeling is key to helping corporations understand their true exposure to climate change not only in the short term but over the next 10, 20 and 30 years. This analysis allows organizations to not only report the financial impacts on their business and comply with upcoming regulations in the here and now, but also think more strategically about the future and plan accordingly.

For compliance, business continuity and long-term growth, there is no time to waste. It is essential to prioritize climate risk modeling and management in your corporate agenda.

## Address climate risks and regulations

According to a study by Nature,<sup>7</sup> the global cost of climate change damage could be as high as \$24.70 trillion per year by 2060.<sup>8</sup>

Over the past 20 years, extreme weather events, like hurricanes, floods and heatwaves, have already cost the world an estimated \$2.8 trillion – averaging out at around \$143 billion per year and \$16.3 million per hour.

The economic impacts of climate change couldn't be clearer. And soon, in the wake of increasingly severe weather conditions, publicly traded corporations will have to model, measure and report how the fallout is affecting their own businesses.

Climate reporting frameworks, such as the Taskforce on Climate-related Financial Disclosures (TCFD), used to be voluntary. But jurisdictions around the world are increasingly making such disclosures mandatory, with some required to comply as early as 2025. These jurisdictions include, but are not limited to, the European Union, the United Kingdom, Australia, Canada, Hong Kong, Brazil, and the U.S. state of California.

Disclosures will cover the "physical risks" caused by extreme weather events and longer-term shifts in climate patterns, as well as the "transition risks" associated with moving to a low-carbon economy. Plus, firms will be asked to report any business opportunities that climate change might present.

Making these disclosures presents a complex operational challenge to corporations, as they grapple with new environmental, social and governance (ESG) reporting requirements and determine where and how to collect all the right data. In fact, according to the FIS® Global Innovation Research 2024, more than half of business leaders say they struggle to even understand ESG reporting standards.

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<sup>7</sup> World Economic Forum, Climate change is costing the world \$16 million per hour, October 2023

<sup>8</sup> Nature, Global supply chains amplify economic costs of future extreme heat risk, March 2024

# What physical risks could your corporation face?

Every year, the World Economic Forum publishes its Global Risks Perception Survey of 1,500 experts across multiple disciplines. In its 2024 edition, it is no surprise to see climate and nature risks, such as changes to the Earth's systems, biodiversity loss and natural resource shortages, rank among the top risks over the next decade given the long-term timescales over which climate change may play out. Yet in the short term, extreme weather ranks only behind misinformation as the most likely risk to become a critical global threat over the next two years.<sup>9</sup>

These extreme weather risks, known as physical climate risks, include damage to property, infrastructure or inventories, business interruption and increased operating costs. In addition, it's vital to consider risks to supply chains. In many recent instances, supply disruption has had a marked financial impact on businesses; however, the risks for individual corporations will vary widely from firm to firm.

**Sectors that face the most immediate physical risks include:**



## Agriculture

Droughts, floods and heatwaves can cause significant damage to crops, livestock and fisheries, leading to food shortages, price hikes and loss of revenue.<sup>10</sup>



## Leisure

Ski seasons are getting shorter as rising temperatures reduce snowfall. For example, almost all U.S. ski resorts could see a 50% shorter season by 2050, and up to 80% by 2090.<sup>11</sup> And in Europe, 53% of ski resorts across 28 countries are projected to be at very high risk of snow scarcity under global warming of 2°C (3.6°F) above pre-industrial levels; nearly all resorts are at risk should warming reach 4°C (7.2°F).<sup>12</sup>

Hotter conditions make some summer resorts less desirable at certain times of year. But weather can also disrupt transportation to vacation destinations, with airline hubs, railways and ferries being especially vulnerable.



## Construction

In winter and summer, extreme weather conditions can affect many aspects of the construction process, compromise the health and safety of workers, delay projects and push up costs. New buildings must also be thermally efficient and climate resilient.<sup>13</sup>



## Retail

Changing weather patterns and more frequent and extreme events disrupt supply and distribution chains to impair business performance, limit availability and raise prices, as well as disrupting business continuity and endangering employees.<sup>14</sup>

Additionally, poor weather reduces footfall in shops. And in extreme cases, disruption of infrastructure and transportation makes it physically impossible for some customers to travel to stores.

For retailers, extreme weather events, from flooding to wildfires, can also introduce direct physical risks for stores, distribution centers and the supply chain. For larger groups and diversified retailers, the risks are broader geographically and may span the range of industries embedded within the supply chain, such as agriculture, clothing and consumer electronics.



## Pharmaceutical

Reliance on global networks for manufacturing and distribution makes pharma companies especially vulnerable to unexpected weather events and other effects of climate change.<sup>15</sup> Companies reliant on single or a small number of distribution centers are at particular risk for severe or sudden disruptions.

<sup>9</sup> World Economic Forum, The Global Risks Report 2024, January 2024

<sup>10</sup> United States Environmental Protection Agency (EPA), Climate Change Impacts on Agriculture and Food Supply, November 2023

<sup>11</sup> Zurich, Here's How Climate Change Will Impact Businesses Everywhere, April 2023

<sup>12</sup> Nature Climate Change, Climate change exacerbates snow-water-energy challenges for European ski tourism, August 2023

<sup>13</sup> Marsh, Climate change and impact on construction, May 2023

<sup>14</sup> Climate and Climate-related Risk in the Retail Industry, April 2022

<sup>15</sup> Pharmaforum, Pharma's climate change vulnerability and opportunity, September 2022

# What about the transition risks?

Business-related transition risks arise from the global shift toward a low-carbon economy and fall into four main categories.

## 1. Policy and legal risks

Government policy can greatly impact the transition risks some companies face. Policies in question include: mandates to phase out conventional petrol or gas cars in favor of EVs; imposing variable forms of carbon taxes; and incentives to adopt new greener technologies such as heat pumps, solar panels and wind turbines.

In 2024, major elections took place in at least 64 countries (plus the European Union), affecting around 49% of the world's population.<sup>16</sup> The potential for change in governments and policies represents a transition risk in itself as different parties will generally have different policies for transitioning to a lower-carbon economy.

On the legal side, climate-related court claims against organizations have more than doubled since 2015.<sup>17</sup> These cases not only target companies whose operations are perceived to contribute to the climate crisis but also firms accused of greenwashing,<sup>18</sup> who make exaggerated claims about climate action or fail to meet net-zero targets. This form of litigation will only rise further as climate change and its contributing factors cause more costly damage and loss.

## 2. Technology risk

Technology is helping drive the transition to a lower-carbon economy and can potentially accelerate the replacement of certain products such as gas-fired boilers or petrol- or gas-based generators. While this shift represents risks for some firms, it can also create opportunities for others.

## 3. Market risk

Changing consumer behavior and shifts in supply and demand for raw materials, products and services can push up prices. In fact, 69% of consumers globally have changed their consumption habits due to climate change – buying less, adopting new diets, recycling more and creating less waste, for example.<sup>19</sup>

As policymakers work to influence consumer behavior with incentives and mandates, consumers themselves are becoming increasingly aware of climate change. And technology is driving new, greener products to market, from electric vehicles to sustainable fabrics, to meet this transition.

## 4. Reputational risk

With corporations under pressure to demonstrate their contribution to a greener economy, 69% of people expect CEOs to do more to address environmental issues.<sup>20</sup>

# Are you ready to report?

Although your business may not be in the first wave of companies required to comply with global regulation, the time to prepare is now. You won't want to wait until the deadline to collect the data and establish the processes needed to fulfil mandatory disclosures.

FIS also encourages firms to go beyond check-box compliance and to truly understand, properly manage and effectively mitigate their financial risks. Disclosures aren't just about reporting to regulators or even investors but also being transparent with all your stakeholders, including employees and any companies you may supply.

Climate-related disclosure rules also require companies to disclose any opportunities that arise from climate change.

For example, manufacturers and providers of renewable energy products such as solar panels and wind turbines will have the potential to grow faster in a greener economy. Equally, oil and gas companies could manage their own transition risks by moving into renewables or electric vehicle charging.

As companies pivot to lower their carbon emissions, many are also developing products that have a lower carbon footprint or are more sustainable. This could lead to higher sales or revenue, especially as consumer trends change – and enhance a firm's reputation with customers, employees and investors.

<sup>16</sup> Time, The Ultimate Election Year: All the Elections Around the World in 2024, December 28, 2023

<sup>17</sup> Climate Neutrality Forum, Sensitive Intervention Points for Achieving Climate Neutrality, November 2021

<sup>18</sup> Oxford Law Blogs, Greenwashing Exposed: A Close Look at the Existing Case Law (Part 1), December 2023

<sup>19</sup> Statista, Change made to consumer behavior due to climate change, March 2023

<sup>20</sup> Deloitte, Consumers Expect Brands to Address Climate Change, April 2021

## Look beyond compliance

Viewing regulatory reporting as a compliance exercise is one option. Another is to see it as an opportunity to gather valuable information on climate risk and its realities for your business. Climate disclosures can provide a helpful lens through which all future business decisions can be examined and can be used in due diligence processes.

### Think globally

Many large corporations are either multinational or rely on suppliers overseas for products, services, equipment or raw materials. It's important to consider the impacts of climate risk on your international supply chain.

A great example comes from the automotive industry, with many motor vehicle manufacturers having several thousand suppliers in more than 50 countries. But even large retail chains can have thousands of suppliers – and we live in a world where supply chains extend across many borders, but aren't necessarily diversified or resilient to a changing climate.

### Drive strategic change

It's not enough to simply report the financial impacts of climate change. When you understand your risks fully, you can learn how to reduce them and improve your resilience by adjusting your strategy.

Many retailers are already making modifications to buildings at high risk from extreme weather to protect them from further damage. Some are replacing sheet roofing on large stores with stronger materials that can withstand hailstorms. Others are specifying additional flood protection for new buildings at the design phase.

Additionally, companies can even use climate analyses to relocate facilities altogether, or screen potential sites for future construction.

### Adapt and thrive

As well as protecting their business from risk, corporations have the chance to proactively tackle climate change and unlock value and growth from sustainability. Key opportunities include:



**Green energy** – Investing in renewable energy sources to reduce their carbon footprint and energy costs



**Sustainable products and services** – Meeting growing demand from consumers and improving their brand reputation and customer loyalty



**Efficient operations** – Improving efficiency by reducing waste, conserving resources and optimizing supply chains



**Innovative technologies** – Developing or adopting carbon capture and storage, smart grids and electric vehicles to reduce emissions, improve sustainability and create new markets and competitive advantage



**Adaptation and resilience** – Preparing for the impact of climate change by developing adaptive strategies and investing in disaster risk reduction



# Unlock a resilient climate modeling framework

By modeling different climate change scenarios, firms can identify the most effective ways to adapt to changing weather patterns, whether by building away from flood plains, developing stronger flood defenses or installing more air conditioning in response to rising temperatures. They can also anticipate changing insurance conditions as underwriting practices react to increased climate risks for many regions globally.

Analyzing climate data can also help firms better manage their supply chains, plan for impacts on employee health<sup>21</sup> – and develop products and services that support the transition to a low-carbon economy.

But modeling the physical risks of climate change is no mean feat for corporations. It takes a combination of deep expertise in climate science and powerful risk management technology to build and validate climate models, feed in the right hazard data, calculate the impacts of different scenarios and project the results decades into the future.

And as the urgency to model climate risk grows, few – if any – corporations will have the time, skills and resources to develop in-house systems to carry out this work.

The good news is that newly available SaaS-based tools and services can provide and manage the data, models and calculations for you, allowing your firm to quickly and easily estimate the financial risks of climate change. So, in the long term, you can build resilience to the business realities and keep your finances working harder than ever.

## Model the financial risks of climate change rapidly with FIS and PwC US

With climate data provided by PwC US, FIS Climate Risk Financial Modeler offers corporations a cost-effective way to understand and financially quantify their exposure to the physical risks of climate change. Now you can analyze how future climate change is likely to impact your business, project the financial cost under different emissions scenarios and make informed strategic decisions that help your money work harder.

## Get in touch with FIS

to find out how our cutting-edge, SaaS-based technology can help both meet your current regulatory requirements and inform your financial risk plans for the future.

Please note: FIS' Climate Risk Financial Modeler solution allows end clients to use a climate data model developed by PwC US. Due to PwC's independence obligations as a public accounting firm, PwC US Climate data will not be available to certain companies, therefore FIS' Climate Risk Financial Modeler solution is currently only available to companies that are not subject to these independence restrictions.

<sup>21</sup> Pharmaforum, Pharma's climate change vulnerability and opportunity, September 2022





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Our **technology** powers the global economy across the money lifecycle.



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Unlock seamless integration and human-centric digital experiences while ensuring efficiency, stability, and compliance as your business grows.



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