Storebrand

STOREBRAND GLOBAL SOLUTIONS WHITE PAPER

The rising cost of a warming world

Physical climate risk is being repriced across the real economy – what are the implications for investors and protecting portfolios?

September 2026

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1. Introduction

> This summer's record-breaking temperatures have also had an unprecedented financial impact. Physical climate risk is being repriced across our economy faster and in more places than ever before – all regions, sectors and asset classes face some level of exposure.

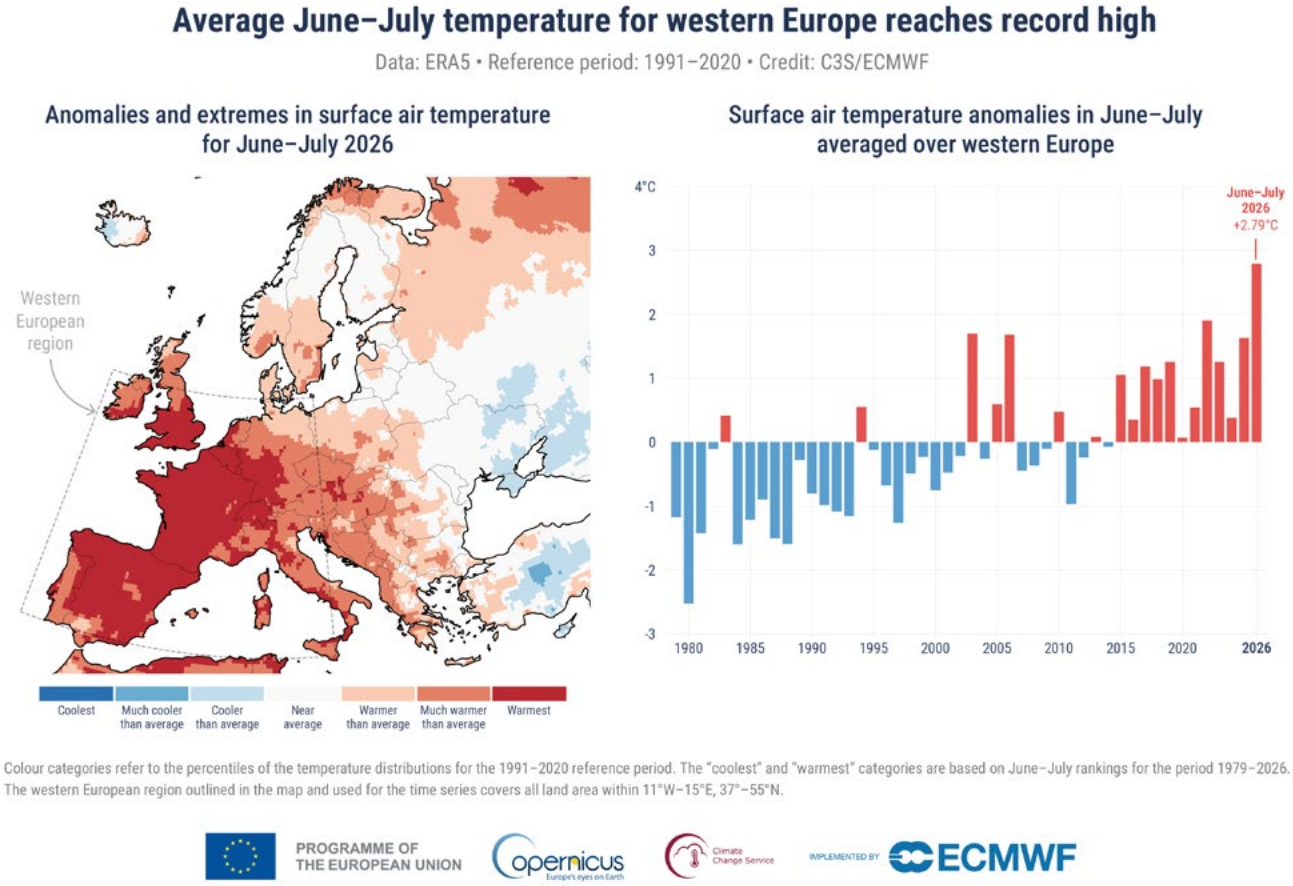
Philip Ripman
Senior Portfolio Manager

Western Europe has just lived through its hottest summer since records began. June and July averaged 21.6°C, close to three degrees above the long-run average and (un)comfortably hotter than the previous record set only four years ago. It was also not an isolated spike; an unusually early heatwave in May was followed by a series of further hot spells into August, accompanied across much of the continent by wildfires and drought.

The extreme temperatures were also widespread. France recorded its hottest national average day ever when temperatures hit 30°C in June, records fell for three consecutive days in Germany when 46 locations exceeded 40°C in the same month and Spain endured persistent highs above 42°C. The hot weather also had a significant human cost with early estimates suggesting that Europe's four back-to-back heatwaves contributed to at least 35,000 excess deaths over the summer [1].

The record-breaking temperatures also had an unprecedented economic impact. The Rhine fell to its lowest recorded level at Cologne that saw barge traffic on one of Europe's busiest freight corridors slow to a crawl. Low and warming rivers forced nuclear plants in Hungary and Romania to cut output as reactors were unable to discharge waste heat safely at full capacity, and grain harvests in France and elsewhere came up short.

[1]The Guardian, August 2026



Clear and present danger

For most of the last decade, climate risk has typically been discussed as something that arrives around 2050 and is expressed in percentage points of global GDP, rather than an immediate monetary cost. The effects of this summer, however, have been felt almost immediately and by all of us in the form of higher freight rates, power prices and food costs.

Indeed, the evidence of recent years is that the physical cost of a warming climate has stopped being a forecast and is already embedded in insurance premiums, mortgage delinquencies, transportation rates and even the price of a bar of chocolate. Physical climate risk is being repriced across our economy faster and in more places than ever before – all regions, sectors and asset classes face some level of exposure.

For investors, who have traditionally focused on market, credit and liquidity risks in security and portfolio analysis, climate-related threats are now a clear and present danger. Rising insurance, food, transport and energy costs are impacting mortgage books, municipal budgets, corporate earnings and headline inflation.

Investable solutions

Thankfully for investors, these pressures are also creating a large, growing and increasingly investable market for solutions that can help alleviate them. Protecting the traditional economy we already have and building the lower-carbon one we increasingly need requires huge capital expenditure and investment is running at record levels. Total spending on the energy transition alone reached around US$2.3 trillion in 2025, more than double the level of 2020.

This paper looks at the rising costs of a warming world and, using examples from our portfolio, how solutions companies are meeting the challenges created by a climate that has already changed. It will explore four main areas where climate-related costs are increasingly measurable – insurance, housing, food, and energy and transport – and trace their portfolio impact through credit, earnings and inflation effects. Importantly, it will also pair each of these areas with a theme from our portfolio that helps address these downside risks.

2. Counting the costs

Insurance: the market that reprices first

Insurance provides an important tracker of climate risk pricing as most policies are driven by detailed, localised data. Whereas mortgage rates or wages might remain static for several years, homeowners' premiums are underwritten annually based on the most recent loss experience, making the insurance market one of the fastest, most efficient and most accurate climate risk measurement tools available.

Global insured losses from natural catastrophes reached roughly US$107 billion in 2025 and could reach US$186 billion by the end of the decade according to Swiss Re. More telling is that the 'protection gap' – the shortfall between total economic losses and the portion covered by insurance – widened last year to an estimated US$424 billion (from US$395 billion in 2024) as cover becomes increasingly unaffordable or simply unavailable. Nearly three-quarters of the world's catastrophe exposure currently remains uninsured and is therefore absorbed by households, businesses and governments directly .

Florida home insurance premiums have roughly doubled over three years to reach an average ~US$8,300 in response to widespread flood and fire losses. Combined with rising tax and mortgage costs, this has driven the state's rise to the top of the US national foreclosure tables. In parts of the American west, wildfires have pushed insurers to withdraw cover or to price at levels that function as withdrawal. Elsewhere, Australia's prudential regulator recently warned that, on plausible climate scenarios, up to a quarter of the country's homes could become effectively uninsurable by 2050.

The insurance market also demonstrates that physical adaptation works. In financial terms across a range of hazards, protective investment carries a median benefit-to-cost ratio of roughly 1.86, meaning close to two dollars of avoided loss for every dollar spent, illustrating how rising costs create a measurable investment opportunity.

Housing: there's no stress like home

Another area that provides useful insight is housing. The US market alone is worth around US$55 trillion and detailed loan-level data provides clarity on the changing nature of climate risk across different areas. Recent analysis by ICE of tens of millions of mortgages found that in the months immediately after an extreme weather event, the probability that a previously current loan falls into delinquency rises by around 18% after a flood, 21% following a tropical storm or hurricane, and roughly 250% after a wildfire, once you control for the usual borrower and loan characteristics. For most borrowers these spikes are temporary, cushioned by disaster relief, servicer forbearance and insurance payouts, and they fade within a year, but they represent concentrated stress on local banks, credit unions as well as the servicers and securities that sit on top of these loans.

Average percentage increase in delinquency probability after extreme weather events
(for loans current before the events)

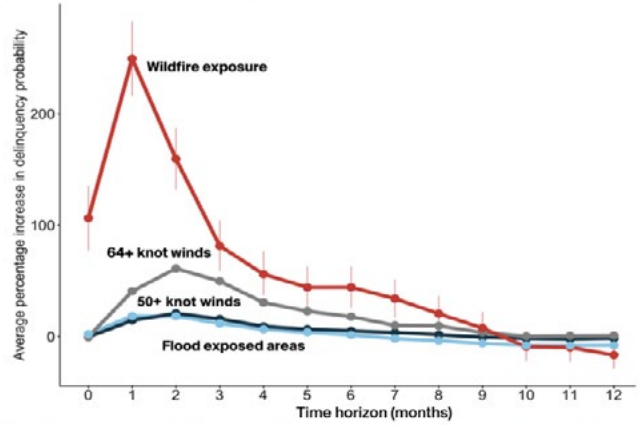


Figure 6: Average percent increase in delinquency probability relative to baseline in tropical storm- and hurricane-exposed (50+ and 64+ knot winds), flood-exposed and wildfire-exposed areas for loans current before the events.
Source: ICE Climate as of 10/10/2025.

[2] Swiss Re Institute, Sigma Natural Catastrophe Report, 2026

The report's longer-term findings are even more stark. Looking across five years and more, loans on properties with high flood or hurricane risk show more than 30% higher rates of serious, prolonged delinquency – 43% for the highest flood-risk loans and 79% for the highest hurricane-risk loans – even in the absence of a specific triggering event and after controlling for borrower quality. The cost of simply living in a high-risk area, through insurance premiums, taxes and repair bills, appears to erode household resilience over time. The same pressure also shows up in home values; after adjusting for a wide set of socioeconomic factors, homes in the highest flood-risk areas appreciated an estimated 0.2 to 0.4 percentage points a year more slowly than comparable homes elsewhere between 2013 and 2024. With compounding, around US$31 billion of US residential value may have been lost from flood risk over the period, which is likely still only a fraction of what full pricing would imply.

A second-order effect is that slower house price appreciation in high-risk areas erodes the assessed tax base on which local governments depend, threatening tax revenues that fund schools and services. Some municipalities are now actively raising taxes to fund flood defences and resilience works, representing a further expense for residents in affected areas.

The ICE report underscores how climate risk is impacting the housing market through several channels simultaneously – delinquency, valuation, insurance cost and public finance – and the softening already visible in the most exposed markets, such as parts of coastal Florida, may be only the start of things to come. The solutions to housing risks are similarly diffuse, covering insurance, water and adaption, which we will explore in more detail below.

Food: unexpected costs in the bagging area

Food pricing is perhaps where climate costs are most visible to the public and, therefore, most politically potent. The direct line from a hot or dry growing season to a reduced harvest and higher prices on supermarket shelves impacts everyone, albeit often with a few weeks' lag.

A recent study into 'climateflation' across 27,000 monthly price observations in 121 countries found that higher temperatures have caused persistent food inflation with the largest price rises occurring when already-hot months get hotter. The sweltering summer of 2022 added between 0.4 and 0.9 percentage points to European food inflation, for example, and continued warming is projected to see global food inflation pressure reach three percentage points a year by the mid-2030s in some scenarios[3].

Commodities are experiencing some of the worst effects. A heatwave across west Africa's cocoa belt in the spring of 2024 pushed up global cocoa prices by around 280%[4]. This summer's European heatwave is estimated to have wiped out nine million tonnes of grain, with some analysts now arguing that climateflation may exert more upward pressure on food prices next year than geopolitical disruptions to supply chains[5]. Crop losses look set to increase even further in the coming years as the climate crisis gets worse. In the EU, for example, the average annual loss is predicted to rise by up to two-thirds by 2050, according to analysis by the European Commission and European Investment Bank (EIB)[6].

For investors, the portfolio impact is two-fold. First, food inflation is a large and stubborn component of headline inflation, feeding directly into the path of interest rates. Weather-driven food inflation is a supply shock that behaves differently from demand-driven inflation – central banks cannot ease it away without stoking the rest of the economy, so it tends to keep policy tighter for longer. Second, because food is a larger share of poorer households' spending, food inflation is regressive which makes it politically difficult to ignore and therefore more likely to draw a policy response or market intervention which introduces its own second-order risks in the form of government subsidies or price controls.

[3]Kotz, Kuik, Lis and Nickel, Global warming and heat extremes to enhance inflationary pressures, Communications Earth & Environment, 2024
[4]Kotz et al., Climate extremes, food price spikes, and their wider societal risks, Environmental Research Letters, 2025
[5]Oxford Economics, 2026
[6] The Guardian, August 2025

Energy and transport: supply and demand pressures

The impact of extreme temperatures on energy and transport is often underappreciated, but this summer illustrated vividly how the systems that keep the economy cool and moving are themselves sensitive to heat. Electricity demand inevitably rises as air-conditioning loads climb. At the same time hot weather can reduce supply as thermal and nuclear plants have to cut output when the river water they rely on for cooling runs low or warm – a perfect storm that reactors experienced in central Europe this summer.

Transport tells a similar story. When the Rhine fell to a record low, barge freight that moves coal, chemicals, grain and much more through the industrial heart of Europe, was throttled, raising costs and forcing goods onto more expensive rail and road. Across Europe, extreme heat buckled rail tracks and softened road surfaces, forcing speed restrictions and closures. Heat also thins the air, limiting aircraft cargo volumes on the hottest days.

These issues highlight that a great deal of our critical infrastructure was engineered for a cooler climate and the costs of lost throughput, reduced capacity and emergency repairs are now rising alongside average temperatures. They also illustrate where the cost and opportunity sides of climate change meet – an economy that has to move more power through a hotter, more constrained system requires heavy spending on the grid and infrastructure that carries it.

Widespread impact

The four areas above provide quantifiable evidence of the growing costs associated with a warming world. Several others are becoming more measurable and also illustrate the growing breadth of the problem. First, labour productivity: heat reduces the amount of work a human body can safely do and the effects are inevitably most serious in outdoor settings such as construction, agriculture and logistics that modern economies still depend on. Second, health: heat raises mortality and morbidity, increasing cost pressures on health systems that are in most countries a public and, therefore, fiscal burden. There is also evidence that the geographic range of some diseases is shifting with temperature[7] . Third, water scarcity: competition for an increasingly threatened resource creates operational risk for water-intensive industries such as power generation, semiconductors and data centres that are evermore important for our growing digital economy.

Construction, agriculture and logistics workers face the direct impact of extreme temperatures.

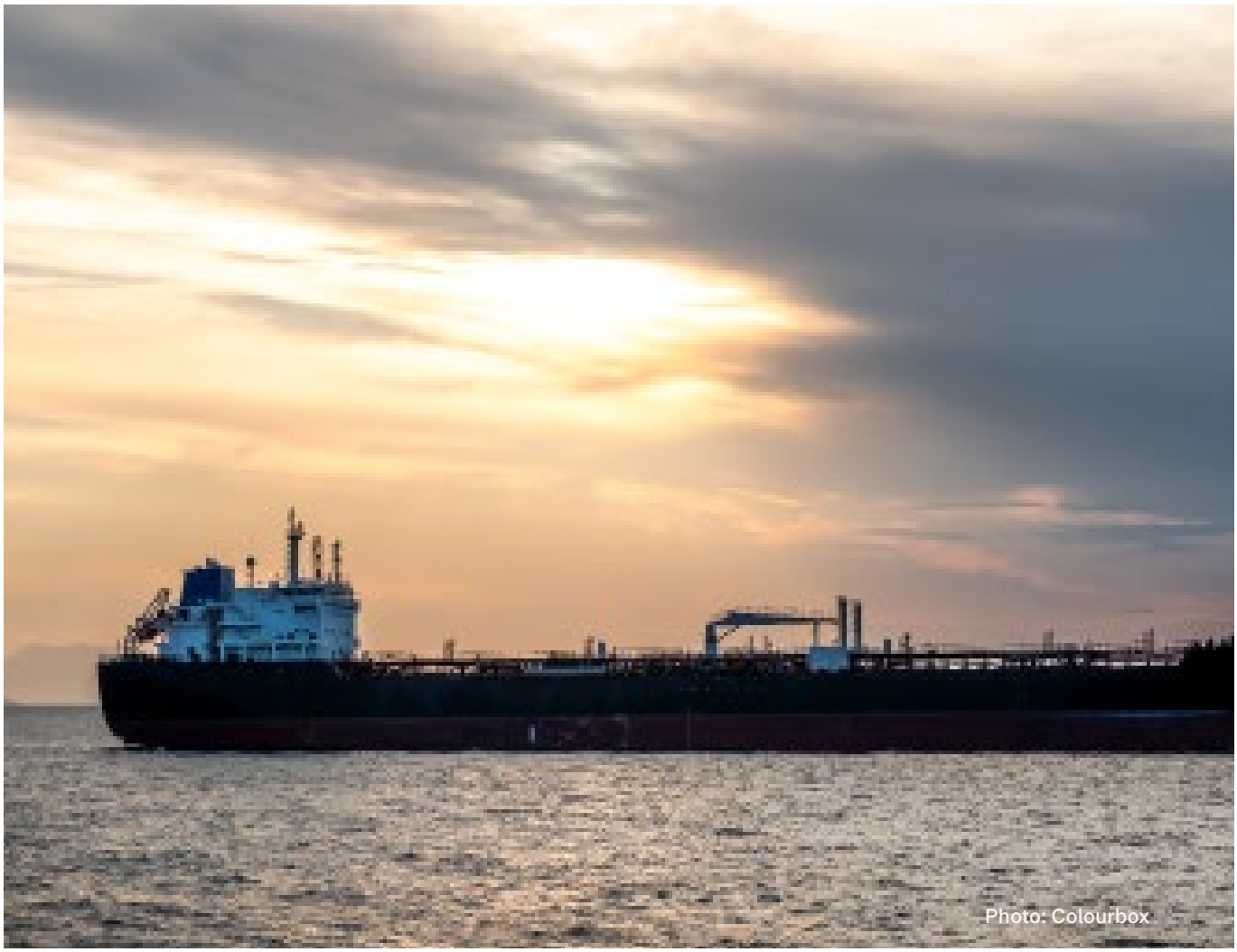
[7] KR van Daalen et al., Lancet Countdown Europe report, 2024

The end of political apathy

The recent resurgence in renewable energy has a set of different drivers than at the start of the decade when the focus was a "green push". We are now seeing more emphasis on energy security, both in terms of supply but also delivery through grid expansion. This greater realism highlights some of the beneficial attributes of renewables, including how easy it is to get to production and how little they are affected by issues like the Strait of Hormuz once in production. Yes, production is in China, but once a solar panel is installed, its life-span is 20+ years rather than continuous deliveries of a product that depends on your loyalty.

As rising costs become increasingly real and climate change is felt by a larger part of society, it's inevitable that politics will refocus on the issue. In the same way that geopolitical realism changed the drivers behind investments in renewable energy, effects of climate change will reshape the drivers behind many similarly affected themes such as fresh water, extreme weather adaptation and energy efficiency. The change is that costs are now appearing on balance sheets.

These costs materialise either as inflation or withdrawal – the product simply stops being offered. Homeowners won't be able to insure their properties at any price. That is the point at which the politics change, because an insurer exiting a market can't be blamed on a carbon tax. There is no policy scapegoat for a risk that has simply been repriced. Voters may disagree about the cause for a long time to come, but bills are not a matter of opinion.



The Strait of Hormuz provides passage for around 20% of the world's oil.

3. Unrewarded risks?

These events translate into portfolio risk factors most frequently through three transmission mechanisms:

Sovereign and municipal credit. Regions exposed to concentrated physical risks face a higher cost of capital. As house values soften, the municipalities that depend on property taxes to service debt and fund services face a revenue squeeze. The same applies at a sovereign level: economies more exposed to extreme weather face higher adaptation and recovery bills, particularly when they are less able to self-insure against it, putting pressure on their credit rating. A recent study also found that rising climate risks increase the threat of civil wars and outside conflict, with Sub-Saharan Africa, the Western Middle East (Syria, Jordan, Israel, Iraq) and Pakistan cited as particularly exposed. This has implications for areas such as defence spending and geopolitical instability more generally that investors need to consider.

Corporate earnings and supply chains. Companies increasingly face direct climate-related costs through damaged assets and interrupted operations, as well as indirectly through the supply chains that connect them. A drought that closes a barge corridor or a heatwave that de-rates a power plant reduces sales, increases the cost of goods sold or impairs asset values. These impacts are hard to attribute – which is often why they are under-priced – but they inevitably reduce earnings somewhere in a portfolio of listed equities.

Inflation and interest rates. Weather-driven food and energy costs feed into headline inflation and persistent climate-related price rises complicate the job of central banks. The upward pressure on interest rates that rising inflation creates also feeds into the housing and insurance affordability stresses previously discussed.

Investors should be conscious of these growing but often hidden costs. Even those holding passive index funds are likely to be meaningfully long each of these risk factors as the exposure is increasingly embedded across companies, sectors and geographies. Fortunately, there are also a growing number of investable ways to mitigate against them.

4. Finding solutions

'Necessity is the mother of invention' according to the ancient proverb and the same applies to climate risk – the huge costs create opportunities for companies that can eliminate or reduce them. Buildings require cooling, water needs cleaning and power must flow through an increasingly stressed grid. According to BloombergNEF, clean-energy investment alone reached US$2.3 trillion in 2025 – double the fossil-fuel equivalent – and the broader clean-tech market is forecast to triple to over US$2 trillion by the early 2030s.

These are the companies that Storebrand Global Solutions seeks to find across our four portfolio themes of Renewable Energy, Smart Cities, Circular Economy and Equal Opportunities. We look for solutions companies that are converting thematic demand into tangible earnings by applying the same financial discipline on growth, quality and valuation that we would to any other company. Many of our holdings operate in attractive markets benefitting from structural growth, often with high barriers to entry.

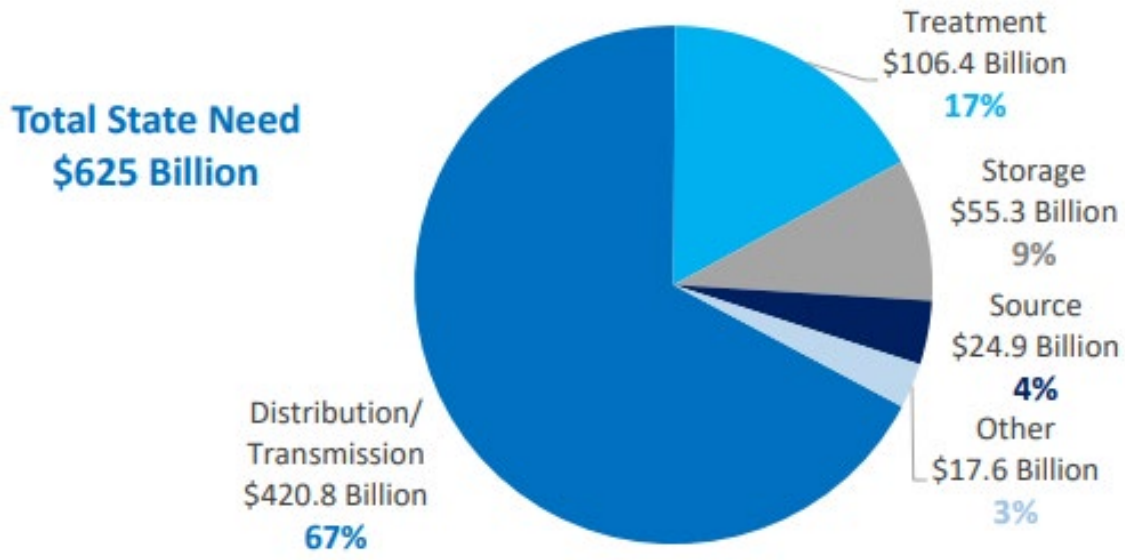
Heat solutions: cooling for economic development

Heat does not fall evenly on a city. On any day, the dense, concrete centre of a large metropolis can be several degrees hotter than its leafy suburbs. Local authorities increasingly include climate adaptation into their tenders and cooler, greener districts are commanding increasingly large premiums in land and property values.

Companies providing cooling solutions include those supplying solar-controlled glass and reflective facades, district heating and cooling, green urban infrastructure, geothermal storage and the digital monitoring that lets a city target the most heat-vulnerable streets. Names such as Acciona, Stantec and Skanska offer diversified, high-quality industrial and engineering exposure centred on cooling solutions that are simultaneously building the new economy and protecting the one we already have.

Water solutions: capturing the urban value chain

Solutions to mitigate flood risk and the impact on housing centre on the transformation of water infrastructure. Across the developed world, water infrastructure is ageing just as the climate is delivering more intense rainfall and longer droughts. In the US alone, investment of around US$625 billion is estimated to be needed to safeguard drinking water over the next twenty years, rising to over US$1.2 trillion once wastewater and stormwater are included[8].



Source: US Environmental Protection Agency, 2023. January 2021 dollars.

We own four companies that span this important value chain: a business that moves and treats water and finds leaks before they become failures (Xylem); one that supplies the valves and safety devices embedded in plumbing codes (Watts Water); one that provides the smart meters and network intelligence that let utilities see consumption and loss in real-time (Badger Meter); and one that manages the stormwater that more intense rainfall is producing (Advanced Drainage Systems).

The chain is particularly attractive as its links operate across different cycles – utility capital budgets, building-code and meter replacement move independently – so four equally-weighted positions can capture the theme without any single-stock concentration. The companies also benefit from demand that is replacement-led and regulation-backed, providing further resilience across the economic cycle.

[8] US EPA 7th Drinking Water Infrastructure Needs Survey, 2023
[9] BloombergNEF, New Energy Outlook, 2025: Grids

Grid solutions: electrification, transmission and circular materials

Energy and transport have the largest and most clearly financed response of the climate-affected areas we have covered. An economy that has to electrify while moving more power through a hotter and more constrained system inevitably has to spend enormously on the grid. Investment in the region of US$15.8 trillion is estimated to be needed globally by 2050, with annual spending rising by around 70% to roughly US$600 billion by 2030[9]. Importantly, much of this spending is policy-anchored and non-discretionary in the form of grid targets, electrification mandates and, increasingly, security-of-supply policies.

Storebrand Global Solutions has exposure to this theme through enablers, such as Prysmian, the world's largest cable maker that operates in the high-voltage and submarine market with formidable barriers to entry. We also hold Nextpower Inc, the world's leading maker of smart solar trackers with a record order backlog of over US$5 billion. Cables and trackers both need copper, and we hold Europe's largest copper recycler, Aurubis, which carries a fraction of the footprint of primary mining and reduces reliance on imported raw materials.

Electrifying and adapting an economy is extraordinarily material-intensive, requiring vast quantities of copper, aluminium, steel and specialist metals, and the primary mining of those materials is itself carbon-intensive and geopolitically concentrated. Circular supply – recovering metal from scrap and e-waste – lowers emissions, import dependency and exposure to the metal-price cycle. For these reasons we regard recycling companies like Tomra, Aurubis, Umicore, Befesa and Derichebourg as some of the more durable and attractive businesses in our portfolio.

5. Where the world is heading

In conclusion, asset and risk repricing due to climate change is already measurable in a range of different areas, such as insurance premiums, mortgage delinquencies, food prices and freight costs. In each of these, however, the growing risks are still only partly reflected in prices. Flood dangers are underappreciated in home values, the insurance protection gap is widening rather than closing and climateflation appears to be under-modelled, with this summer's harvest losses arriving faster than projections assumed.

For investors, these pricing inefficiencies are another reason why solution companies are often attractive investment opportunities. There are large and growing markets for the businesses helping to reduce these risks – the enablers of cooling, water, grid and circular supply – and the solutions they provide will become even more valuable as climate costs continue to increase.

With Storebrand Global Solutions, we are looking at where the world is heading and putting capital behind the enablers of today and tomorrow. This summer was a stark reminder of how quickly "where the world is heading" becomes simply where it is.

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