

# Climate Adaptation and Business Resilience



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# Changes in Climate, Changes in You

**Climate change has an increasing influence on business operations across the national and world economy.** The Universal Ecological Fund estimates climate change will result in annual losses of \$360 billion to the U.S. economy within the next decade.<sup>1</sup> The impacts of climate change will be felt in both the short term, as extreme weather events become more common, and, in the long term, as trends in average temperatures and ocean levels reach new heights.

Changes in climate will result in subsequent necessary alterations to infrastructure and business activities. It's easy to imagine how these changes are risks to continued success, but they can also be opportunities for growth and innovation. Capitalizing on opportunity and managing risk requires a systematic assessment of your business's adaptability and resilience to potential climate change impacts in the short and long terms.

Climate change will result in annual losses of \$360 billion to the U.S. economy within the next decade.<sup>1</sup>

# World Wide Web

## PART 1

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**Many industries are already affected by climate change.** Many more will be in the coming years. A recent study by the Department of Energy predicted impacts across the energy system of the Pacific Northwest, with hydropower and thermoelectric generation, transmission, fuel transport, and electrical load all affected by climate change.<sup>2</sup>

Similarly, insurance companies are changing the way they do business as a result of studying climate change impacts. In 2017, natural disasters caused \$306 billion in economic losses, a 63 percent jump over 2016.<sup>3</sup> Of this, only \$136 billion was insured. That leaves a protection gap that has expanded since the 1970s. This gap, driven by insurance companies changing pricing or withdrawing coverage, comes with good reason. Allstate claimed recent hurricanes wiped out all profits earned in 75 years of selling home insurance.<sup>4</sup> Climate change has made these insurers' risk much greater, such that premiums for full coverage are no longer affordable.

A stylized palm tree graphic with a brown trunk and blue fronds, set against a background of orange and yellow gradients.

**Allstate claimed recent hurricanes wiped out all profits earned in 75 years of selling home insurance.<sup>4</sup>**



Even if your business is prepared for climate change, the web of suppliers and customers you depend on may not be.

# World Wide Web

## PART 2

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**Adapting to a changing climate** is not just a concern for homeowners, natural resource interests or entities responsible for physical infrastructure and assets like roads, utilities, telecommunications, manufacturing, and food. All businesses depend on these resources, and losing them unexpectedly or more frequently can easily cripple operations.

Even if your business is prepared for climate change, the web of suppliers and customers you depend on may not be. This can have just as much of an effect. Because businesses are so interconnected, understanding the resilience of your own organization is equally important to recognizing and influencing the resilience of your entire operational network.

# Our Crystal Ball

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**Climate change will result in diverse alterations to the physical environment.** These changes are not universal, and will take the form of both gradual shifts and more extreme, singular events. Much work has gone into modeling these changes to project what the future may hold.

The U.S. Global Change Research Program and National Oceanic and Atmospheric Administration have improved models to allow greater geographic resolution and, therefore, greater usefulness. Sapere understands how to utilize and incorporate the significance of these climate models into your business strategy.

Government rules motivated by climate change can impact businesses just as much as physical changes. Regulation at the state and federal levels, like new emissions reporting requirements, state environmental policies, and the federal Clean Air Act are examples where regulatory agencies are already adapting their expectations for compliance. Staying current with laws and lawmakers, as well as working with people who have navigated legislation at the state and federal levels, are all important when adapting to this changing regulatory landscape.

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# Climate Change and You

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**There is no single strategy to prepare your business for climate change. The best response is a plan tailored to your business, customers, and region.**

Sapere takes a broad view when developing these strategies, considering every single one of the potential direct and indirect impacts to your business. We consider both the crucial functions of your business and the effects of climate change, matching them up with one another to find where they overlap.

For example, a hydroelectric project that relies on consistently high river flows for power generation could face problems if climate models forecast less annual precipitation in that watershed. On the regulatory side, that same project could fall out of compatibility with changed renewable energy credit and portfolio policies. A generation credit that applies for a hydroelectric dam in one state might not be available in another, based on individual program rules. It's easy to think of some ways that climate change might affect your business, but finding them all requires a partner with experience identifying all the possibilities.

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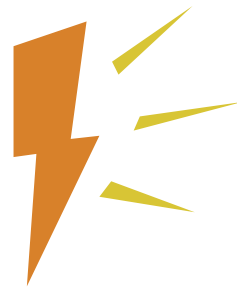
# Hot Opportunities

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It's simple to consider climate change as an exclusively negative thing that presents only challenges to businesses. While the future holds many obstacles for industry, opportunities for growth and cost savings are present as well – if the right preparations are made. For energy utilities, the following may all be possible:



Weather changes may lead to **LARGER MAINTENANCE WINDOWS FOR DISTRIBUTION ASSETS**. Instead of having to bring workers onboard during a very specific time of year, more flexibility is available. That can lead to lower costs and more options when planning for maintenance.



More frequent extreme weather events may increase the failure rate of infrastructure, making it more cost-effective for the utility to **REPLACE ITS PHYSICAL SYSTEMS WITH MORE RESILIENT COMPONENTS**, “hardening” their system against disruption.



Renewable energy markets may continue to grow and accept new generators as renewable energy credit (REC) qualifications change. This may result in **HIGHER DEMAND FOR RENEWABLE POWER** as companies look to fill out their renewable energy portfolios.

**These are examples for energy utilities, but it is clear that physical and regulatory changes could present similar risks and rewards to other sectors that struggle with infrastructure maintenance and sustainably produced goods.**



# So What?

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Once we have used our familiarity with climate models, legislation, and regulation to identify all the risks and opportunities that climate change presents to your business, Sapere characterizes their significance using a risk analysis process. By estimating the likelihood of each risk and the cost of its impact, we prioritize the impacts which are most important now, while keeping track of issues that may come up later or are of a lower priority.

Alongside this characterization of risks and opportunities, we help you devise tactics to handle risks and seize opportunities. Many organizations have already instituted climate change resilience programs, and we maintain familiarity with the actions they have taken to recommend only the most successful to you. Our risk and response data from across many industries lets you consider what tactics will work best for your business.



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# Sapere: To Know Through Experience

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Sapere develops strategies for climate change using our knowledge base of climate models, legislation, and regulation to identify risks and opportunities that may impact your business. We then characterize those risks in terms of impact and likelihood, and, with your input, design responses to handle risk and seize opportunity. In addition, we investigate other entities your business depends on, and leverage your influence over them to increase your resiliency even more. This results in an approach to handling climate change that is included in your business model and permanent, without need for further support from us. A proactive approach to climate change makes your company ready to handle imminent changes well ahead of time. In months, Sapere prepares your business for changes that will happen for decades.

**A proactive approach to climate change makes your company ready to handle imminent changes well ahead of time.**



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<sup>1</sup>Watson, R., McCarthy, J., & Hisas, L. (n.d.). The Economic Case for Climate Action in the United States. Retrieved from <https://feu-us.org/case-for-climate-action-us2>

<sup>2</sup>Zamuda, C., Antes, M., Gillespie, C., Mosby, A., & Zotter, B. (2015). Energy.gov(United States of America, Department of Energy, Office of Energy Policy and Systems Analysis). Retrieved from [https://energy.gov/sites/prod/files/2015/10/f27/Regional\\_Climate\\_Vulnerabilities\\_and\\_Resilience\\_Solutions\\_0.pdf](https://energy.gov/sites/prod/files/2015/10/f27/Regional_Climate_Vulnerabilities_and_Resilience_Solutions_0.pdf)

<sup>3</sup>Daniels, J. (2017, December 20). Global disasters in 2017 caused an estimated \$306 billion in economic losses, says Swiss Re. Retrieved March 08, 2018, from <https://www.cnbc.com/2017/12/20/swiss-re-global-disasters-push-2017-economic-losses-to-306-billion.html>

<sup>4</sup>Mills, E. Responding to climate change – the insurance industry perspective. Retrieved March 08, 2018, from <http://evanmills.lbl.gov/pubs/pdf/climate-action-insurance.pdf>