

ONE | CLIMATE CHANGE | By Samuel Greengard

Climate Change **Changes** **Business**

Net-zero goals are proliferating for both countries and companies. **Businesses are responding** by rethinking supply chains, markets and entire business models.



\$630B

The direct cost annually of **climate-related disasters in the U.S.** alone, or about 3.5% of the U.S. GDP.

Source: 2021 Financial Stability Oversight Council report



Business conditions have never been more challenging. Digital technology is advancing at a furious rate; societal values and attitudes are changing; and a stubborn and ongoing pandemic has upended work environments, supply chains and even entire business models.

All of this pales in comparison to the havoc organizations face as climate change takes hold. Global temperatures were already 1.2 degrees Celsius higher in 2017 than preindustrial levels, and current projections see a rise to 1.5 degrees Celsius above preindustrial levels in the next two decades. Wildfires, floods, heat waves, intense storms and hurricanes, drought and rising sea levels must now factor into both the short- and the long-term plans of every organization.

For businesses as well as individuals, climate change poses a direct threat to property and physical infrastructure. It also ripples into areas such as labor, materials costs, cyber resilience and even the ability to generate revenues. What's more, there are growing concerns about disruptions caused by a broken energy grid and the threat of increased social and political instability.

According to a 2021 study that appeared in Yale's *Journal of Industrial Ecology*, the outcome could be severe, even disastrous. Industrial growth could end within the next decade or two, says **KPMG director Gaya Herrington**. Yet she also points out that the situation isn't completely hopeless. Businesses can play a crucial role in combating climate change. "A transformation of societal priorities...together with technological innovations specifically aimed at furthering these new priorities," she says, could help humanity get back on the right path.

Charles Bayless, the former CEO of **Tucson Electric Power** and **Illinois Power**, and now a consultant at **Insigiam**, describes the problem in this way:

"As recognized in 1824 by the great mathematician Joseph Fourier, the Earth's atmosphere traps heat, causing the Earth to warm. Add more heat-trapping gases and the Earth gets even warmer.


"Today, measurements show that we add the additional heat equivalent of more than three World War II nuclear weapons per second to our atmosphere, ice and oceans, and are also acidifying our oceans. While this may seemingly scream out for action, the economics of externalities are difficult to overcome.

"Assume a city decides to be 100% renewable—all vehicles are electric, and even backyard grills are solar. Assume that the total cost of the conversion—car costs, home solar, everything—when added to the electric bill, is 7 cents per kilowatt hour (kWh). Assume now that the total benefit to society is 35 cents per kWh and thus represents a 7:1 payback. That's a great investment.

"But while the costs are concentrated on the city's citizens, the benefits of the conversion are shared by the world's entire population of roughly seven billion people, resulting in a benefit of one-billionth of a cent to each citizen of the city for their 7-cent investment.

"Market economics alone will not solve our problem. Many factors must come together to ensure our and our children's future, but the most crucial ingredient is leadership: leaders who can visualize a future and then create it, leaders who have the courage to stand up for science and stand up for our future."

Already, companies are responding like never before. The list of initiatives is as impressive as it is varied: They're embracing eco-friendly farming, turning to biofuels, reformulating products with biodegradable materials, introducing sustainable packaging, using electric vehicles, reengineering buildings, adapting data centers, improving recycling and e-waste methods, and even using artificial intelligence to optimize supply



Industrial growth could end within the next decade or two, predicts KPMG Director Gaya Herrington. Transformation of societal priorities . . . together with technological innovations, could help humanity get back on the right path.

chains and logistics. In addition, a growing array of applications helps companies measure and support zero-carbon initiatives.

Yet there's a need to advance beyond today's environmental, social and corporate governance (ESG) programs and embark on wholesale changes to business models. It may even require a fundamental rethinking of capitalism.

| Turbulence Ahead

It's a mistake to view climate change as an abstract and futuristic problem, as its impact is already tangible. A *Harvard Business Review* study found that abnormal weather now disrupts the operations and financial performance of 70% of businesses worldwide.

The financial ramifications are severe. "Climate change is an emerging and increasing threat to America's financial system that requires action," stated **Secretary of the Treasury Janet L. Yellen** in a recent Financial Stability Oversight Council (FSOC) report. In the U.S. alone, the cost of weather variability exceeds \$630 billion annually, about 3.5% of the GDP. That figure will undoubtedly

increase in the years ahead.

For businesses, climate change promises to affect every corner of the enterprise. The most obvious problem is damage caused by violent and extreme weather. Low-lying areas are ever more prone to flooding. Larger and more intense wildfires threaten physical infrastructure—even in urban areas. Hurricanes, floods and violent storms put offices and data centers at risk. And drought conditions additionally threaten data centers, which demand large volumes of water.

"We are seeing the frequency of disruptions growing and their level of impact increasing," states **Andrea Bonime-Blanc**, CEO of New York City-based **GEC Risk Advisory** and a faculty member in the Global Security, Conflict and Cybercrime program in New York University's Center for Global Affairs. "There's a need to rethink the way organizations approach business and the way they actually manage the business." This includes building more resilient infrastructure and IT frameworks and >>>

70%

Percentage of operations and financial performance of businesses worldwide **disrupted by abnormal weather.**
Source: *Harvard Business Review*

PREVIOUS SPREAD, KOTO_FEJA/GETTY IMAGES; ABOVE, BLOOMBERG CREATIVE/GETTY IMAGES



also adapting supply chains to minimize disruption risks.

Indirect effects of climate change will likely be substantial as well. For example, health care systems may buckle under the stress of climate-related problems in the coming decades. “When you look at who really suffers from the poor outcomes of our climate strategy, it’s very often the same people who are disadvantaged through inequitable access to health care. They often carry the biggest burden of the cost of climate, one way or another,” says **Sir Andrew Witty, CEO of UnitedHealth Group**.

Although it’s tempting to think that moving more tasks online will solve the problem, the climate change equation isn’t that simple. Digital activities currently represent only about 3.7% of global energy consumption. However, growing digital energy demand is forcing businesses to construct more data centers. Over the coming years, video, artificial intelligence, machine learning, deep learning, cryptocurrency mining and the Internet of Things (IoT) will further increase energy demands, says **Kelly Widdicks, a lecturer at the School of Computing and Communications at Lancaster University** in the U.K.

Cryptocurrency mining is especially alarming, because it’s prompting high-emission coal-powered plants to reopen in order to meet the electricity demands it creates. Yet today’s electronic devices also fuel climate change. Not only do they consume enormous amounts of energy during the manufacturing process, but their carbon footprint extends back to the mining and processing of lithium and other minerals used for batteries as well as the e-waste they generate.

| Getting to Net Zero

An October 2021 report from the United Nations and Accenture found that businesses

have been slow to react to climate change. The study of 1,200 CEOs across 113 countries and 21 industries concluded that a majority of organizations are lagging in establishing net-zero emission targets and preparing for climate-related risks.

The situation is forcing organizations to adapt, according to the U.N. study. Overall, 57% of respondents said they are taking steps toward addressing targets set by the Paris Agreement. For instance, 64% of CEOs reported that they are diversifying their material inputs in products and operations, and 63% have started to diversify geographically. In addition, 81% have begun to develop new sustainable products and services, and 74% of CEOs say they are now deploying new and circular business models that minimize carbon output.

That’s the good news. The same U.N. report found that only 16% of organizations have reached an advanced level of net-zero business, and an equal number have reached an advanced level for measuring and reporting greenhouse gas emissions. Magnifying the problem is the fact that insurance companies are increasingly hesitant to insure against climate-related risks in areas prone to problems, even as Net Zero Tracker, which reports on national net-zero commitments, shows that governments have been slow to establish clear policy guidance and regulations.

Where does this leave the business world? **Richard Black, senior associate at U.K.-based Energy & Climate Intelligence Unit**, an independent think tank, says there’s a fundamental question: Is the world on the path to progress, or are government and enterprise moving too slowly? Mr. Black says that the quality of existing targets is rising, but that “more than 20% of major G20 firms must urgently shift their targets from intent to integrity if they want to be taken seriously, and the rest of them—

64% of CEOs reported that they are diversifying their material inputs in products and operations; 63% have started to diversify geographically; 74% say they are deploying business models that minimize carbon output. —Source: October 2021 United Nations and Accenture report

nearly 1,000 firms—need to quickly wake up to the reality of this transition.”

| Thinking Beyond Carbon

Shifting climate change initiatives into high gear will require bold thinking—and immediate action. At the heart of the challenge, Ms. Bonime-Blanc says, is difficulty connecting specific corporate strategies directly to climate change. “There are tangible issues, but also many nontangible issues that veer into highly technical areas. It’s critical to connect the dots across all the various areas—which present different issues, risks and opportunities.”

What’s needed, Ms. Bonime-Blanc says, is a focus on moving beyond ESG and into the realm of what she calls ESG plus technology, or ESGT. She describes this as a fusion of technology and policy. It includes governance and leadership, while plugging into a deeper understanding of a company’s footprint, products or services, and extended supply chain. “Every business is a bit different. Yet every business can design a strategy for both addressing climate change and resiliency from it,” she says.

This includes rethinking materials sourcing, defusing cyber risks, and adjusting international transportation and product delivery routes. It can involve redesigning manufacturing processes and investing in renewable energy >>>



Coca-Cola Gets a Taste of Climate Change Success

The company’s sustainable efforts—revolving around science-based targets and international cooperation—range from water resource management to implementing more sustainable packaging. For example, in October 2021, Coca-Cola unveiled its first-ever beverage bottle prototype made from 100% plant-based plastic, excluding the cap and label.

It is now working to scale the technology. In addition, it aims to collect and recycle or reuse 100% of the bottles it produces by 2030. The company’s overall approach to ESG has already helped Coca-Cola achieve a 25% reduction in relative greenhouse gas emissions from 2010 to 2020.

It now aims to reduce its absolute carbon emissions 25% by 2030, and has an ambition to achieve net zero emissions by 2050. **IQ**

RIGHT, COURTESY COCA-COLA



and new low-carbon technologies. Along the way, organizations must examine social, geopolitical, environmental and economic forces more closely.

“Organizations must have situational awareness like never before,” Ms. Bonime-Blanc says.

Experts say that reducing a carbon footprint and establishing cyber resilience means rethinking what it means to be a business. It isn’t enough to simply swap out locations for data centers and other facilities. There’s a need to consider complex overlapping factors. This includes how a project benefits the business, of course, but also how it changes the carbon footprint. This can also serve as a starting point for exploring more efficient building designs, manufacturing methods and waste disposal.

A growing number of companies across a broad spectrum of industries are embracing innovation and promoting change on a grand scale. For example, General Motors has set a target of 2035 for ending production of gasoline- and diesel-powered vehicles. Most of the major airlines, including Delta Air Lines and United Airlines, have committed to using sustainable alternative jet fuels. In fact, in December, United operated the first commercial flight using 100% sustainable aviation fuel. Meanwhile, Hyatt is constructing energy-efficient buildings that use materials such as low-carbon, sustainable concrete and smart glass.

Others are focusing on areas such as manufacturing and packaging. Old Navy recently found a way to use bio-based materials in the production of its flip-flops. Coca-Cola is focusing on sustainable agriculture and sourcing all key ingredients sustainably. It has developed a bottle made of 100% plant material. The company aims to reduce its carbon footprint by 25% by 2025. HP is on a path to making all of its products and

components entirely recyclable. To that end, it has constructed e-waste processing plants around the world.

Starbucks has redesigned lids for beverages to eliminate the use of straws, which could cut the number of discarded straws by millions. Meanwhile, Microsoft has embarked on an ambitious goal of becoming carbon negative by 2030. It hopes to achieve this objective by migrating to 100% renewable energy, making 100% of its campus vehicle fleet electric, achieving Zero Carbon certification and LEED Platinum rating for its buildings, and establishing an internal carbon tax to promote change.

Ultimately, it’s essential to adopt a big-picture view and change the way we think about products and services, says **Stuart Jenkins, a Ph.D. researcher in the department of physics at Wadham College, Oxford University.** “While offsetting carbon is important, it isn’t the entire solution. It’s next to impossible to ensure that there’s an equal swap.” This means approaching the task in an appropriate and productive way, he argues. “Carbon dioxide extracted from a fossil fuel reservoir that’s a few million years old can’t be entirely offset by simply planting a tree—or even a forest,” he says. The carbon equation is not equal, and forests can be damaged or destroyed by pests and fire.

| Weathering the Change

In the coming years, business leaders are almost certain to feel increased heat regarding climate change from consumers and business partners. Already, shareholders and activists are pressuring companies to adopt stricter environmental controls and reduce emissions. When three climate advocates were elected to the ExxonMobil Corp. board of directors in 2021, it represented a radical shift in thinking and the beginning of a redistribution of corporate power. It signaled that shareholder

80%

The **share of global GDP** now covered by a net-zero target. *Source: Energy & Climate Intelligence Unit*



Climate change means fairly obvious changes for some sectors, such as energy generation, but it will result in changes across the board, having an impact on every company in every sector of the global economy. —Stuart Jenkins, Ph.D. researcher, Wadham College, Oxford University

—Stuart Jenkins, Ph.D. researcher,
Wadham College, Oxford University

value wouldn't be measured solely in dollars, euros, yen and pounds: It would be measured in carbon as well.

The rejiggering of ExxonMobil's board is no fluke. In May 2021, shareholders at Chevron Corp. voted to reduce the company's emissions. Major investment firms have indicated that if the company fails to comply, they may refrain from buying the company's stock. At the same time, governments around the world are cracking down on carbon emissions. In the Netherlands, a court ruled in May 2021 that Royal Dutch Shell would have to reduce its carbon emissions 45% below 2019 levels by the end of the current decade. In July, Shell confirmed it would appeal.

For business leaders, tying all the pieces together is critical. The task requires more than a commitment; it demands metrics and internal accountability, says **Sunya Norman**, vice president of ESG strategy at **Salesforce**. The software giant has focused on metrics and expanding the way it views stakeholders, including employees, customers and even NGO activists. It needs to answer the question,

says Ms. Norman, "How do we make sure that our key stakeholders...not only investors... get the data that they need on sustainability?"

Climate change will ultimately have an impact on every company in every sector of the global economy, Mr. Jenkins says. Yet it may also represent new opportunities for businesses equipped to confront the issues and find innovative solutions. "Climate change means fairly obvious changes for some sectors, such as energy generation, but it will actually result in changes across the board," he says.

Climate change demands bold leadership, and those who step forward will likely avoid the worst for their companies—while helping society achieve the best possible outcome. "Businesses are becoming more and more aware of their responsibilities with climate change, and we are starting to see a transition in focus towards long-term value built by protecting the ecosystem within which our global economy sits," Mr. Jenkins concludes. "Alongside this, public pressure will provide a clear incentive for business leaders and governments to act." **IQ34**

TOWER OF POWER

The power station in Dunhuang, Gansu, China. It's the biggest molten salt tower thermal power station in the world.

ABOVE: XIU HUO/GETTY IMAGES