Editor's Note

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The Earth is burning; scorching might be a more accurate description. We are experiencing cross-planetary climate catastrophes almost daily. The goals, a 50 percent decrease in global emissions by 2030 and zero emissions by 2050, set at the Glasgow Conference of the Parties (COP) in 2022 as absolute minimums to keep the “average global temperature to well below 2.0°C above pre-industrial levels,” and even further, to “limit the temperature increase to 1.5°C [2.7°F]” seem increasingly out of reach.\(^1\)

Despite exceptional rates of clean energy use, global emissions continue to increase. Whatever reductions are achieved in more advanced countries are more than offset by an increase in fossil fuel use in developing countries to service their growing populations and rising incomes. The fossil fuel industry is projected to spend 500 billion USD in 2023 on new supply lines. More coal was burned in 2022 than ever before. More wood was burned than in the nineteenth century.\(^2\)

Researchers at the University of Rochester found that fossil fuel emissions were underestimated by 25 to 40 percent.\(^3\) A recent study by a group of scientists, including James Hansen, former NASA scientist whose testimony before Congress thirty-five years ago helped raise broad awareness of climate change, warns that the planet could exceed 1.5°C by 2030 and that the Earth will warm by 2°C by 2050.\(^4\) A separate study by British and Austrian scientists reached a similar conclusion—that the world would pass 1.5°C of warming within six years.\(^5\) According to NASA, “since the onset of industrial times in the 18th century, human activities have raised atmospheric CO\(_2\) by 50%—meaning the amount of CO\(_2\) is now 150% of its value in 1750. This human-induced rise is greater than the natural increase observed at the end of the last ice age 20,000 years ago.”\(^6\) The amount of carbon in the atmosphere set a record in September 2023 at 419 parts per million (ppm).\(^7\)

A New York Times article states that “atmospheric concentrations of methane have more than doubled from preindustrial times.”\(^8\) Other studies suggest we are approaching or have passed some tipping points, the feedback loops where CO\(_2\) trapped in the atmosphere causes warming to become self-sustaining even if zero carbon emissions is achieved. One study concludes that rapid melting in West Antarctica may be “unavoidable,” with enough ice to potentially rise sea levels 17 feet (5.2 meters).\(^9\) The Arctic, which is warming four times faster than the rest of the planet may be ice free by the summers of the 2030s.\(^10\) As temperatures rise, a study published in Scientific American concluded that thawing permafrost may release large amounts of CO\(_2\) and methane into the atmosphere, causing even more warming. They state that “at the same time, the disappearance of snow and ice cover—bright, reflective surfaces that help to beam sunlight away from the planet—will cause the Earth to absorb even more heat.”\(^11\)
Failure to meet the temperature benchmarks, first agreed upon in Paris at COP21, the UN’s Intergovernmental Panel on Climate Change (IPCC), will have devastating climate impacts. They include more rapid melting of glaciers in the Arctic, rising sea levels, coastal flooding, heat waves making some parts of the world unlivable including megacities (one billion people will live in “unsufferable” conditions within fifty years), more ferocious and frequent wildfires, some engulfing communities in their path, more frequent and intense hurricanes, a warming Siberia melting the permafrost and unleashing the methane under the frozen deltas, food and water insecurity, millions of climate refugees, destruction of the planet’s ecosystem, and the extinction of many species. The Maui wildfire that turned the lush Lahaina into ashes is a harbinger of an apocalyptic future we can expect. With 50 percent of the Earth’s population living in river basins or land that was formerly ocean, studies have shown that large numbers of people will be extremely vulnerable to future flooding. Across the globe, wildfires triggered by extreme heat on the Earth’s surface already have led to the displacement of thousands of people in Canada, Spain, Greece, and Portugal. The amount of carbon held in the soil is triple the quantity in the atmosphere. Wildfires, which are a result of climate change, are releasing carbon that was stored in the roots of plants and the soil. Instead of the vegetation acting as carbon sinks, absorbing carbon, more frequent and increasingly intense forest fires become sources of carbon emissions that intensify the vicious cycle of climate warming.

Two-thirds of the Earth is covered in water and supports 94 percent of the Earth’s wildlife. Increasing climate warming leading to droughts, sea level rise, heavy rains, and flooding can culminate in a large amount of fresh water pouring into the nearshore and altering the ecosystem. Sea urchins, unable to effectively regulate the quantity of salt and water in their bodies, have been on the receiving end of this dip in salinity that leaves them in a precarious situation. This is ominous, given their importance to maintaining balance and strengthening biodiversity in the marine environment. Ocean warming is not only a recipe for tropical cyclones and atmospheric river storms, but also for weakening the Atlantic Ocean currents that help regulate the Earth’s climate.

Moreover, geopolitical considerations complicate the route to the 2050 targets. A key resource constraint on a clean energy economy is critical minerals. There is a concentration of these minerals in China. The US identified fifty critical earth minerals in 2022. For fifteen of the fifty, the US relies on imports for 100 percent of its consumption and for 50 percent of the remainder, China supplied about 70 percent of the earth minerals critical to a clean energy economy. China processes most of the world’s lithium, cobalt, and graphite and controls 75 percent of the world’s electric vehicle (EV) battery production and solar photovoltaic manufacturing supply chains. If relations between China and the US continue to deteriorate, China might weaponize its critical minerals. We are already seeing the gathering signs. In October 2023 the US imposed constraints on the export of components of semiconductor chips to China. China responded by imposing restraints on the export of graphite to the US. Graphite is a key component of batteries for EVs and China is the world’s top producer, accounting for two-thirds of global supply.

This special issue, Climate Warnings, of the New England Journal of Public Policy is jointly edited by Cecilia Kinuthia-Njenga, Director of the Intergovernmental Process and Collective Progress Division, United Nations Framework Convention on Climate Change (UNFCCC), and Fareed Yasseen, Climate Envoy, Republic of Iraq, and former ambassador to France and the US. They drew on climate networks they have cultivated over the decades to identify contributors who
can address some of the crucial issues that call for action at COP28 in Dubai. In their introduction, they lay the groundwork for the articles comprising *Climate Warnings*.

The range of contributions include a review of COP27 and expectations for COP28; carbon credits for decarbonization in developing countries; a proposal to underwrite the costs of preserving biodiversity; visual art and UN climate negotiations; climate geoengineering such as solar radiation modification, should the planet “overshoot” the 1.5°C benchmark; COP27 and the Global South; decarbonization through renewables, including carbon management facilities for carbon capture, utilization, and storage, and direct air capture projects to meet net zero; and a proposal for the Gulf countries to coordinate their response to climate warming.

On the eve of this journal issue going to press in November 2023, the UN’s World Meteorological Organization (WMO) reported that atmospheric CO₂ measured 420.2 ppm. “Despite decades of warnings from the scientific community,” Professor Petteri Taalas, WMO Secretary-General said, “thousands of pages of reports and dozens of climate conferences, we are still heading in the wrong direction.”

We hope *Climate Warnings* will help to reverse the trend.

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**Notes**


Ibid.


