

Scenario: Climate Change 2050

The year is 2050, and despite global efforts to curb emissions, the United States grapples with the catastrophic effects of climate change. The U.S. coastline has risen by 12 inches since 2022, leaving a hundred billion dollars of coastal property below sea level. Property insurers have withdrawn coverage from many coastal areas after repeated storm damage and rebuilding efforts. Property developers, investors, and lenders struggle to operate in these regions. To prevent abandoning the coasts and their massive economic consequences, governments have redirected significant funds towards levees, pumps, and storm surge protection, leaving essential social programs such as public health, healthcare, and education underfunded for decades.

Extreme weather events, especially hurricanes, have become more frequent and intense. Annual damage losses have risen by over \$7 billion, resulting in a yearly cost of \$35 billion for hurricanes and coastal storms. The constant barrage of extreme weather has created an internal climate refugee crisis, with some states refusing to accommodate the displaced and others buckling under the pressure of soaring populations.

Water scarcity has become the new normal in the West, leading to power and water shortages. Lake Mead and Lake Powell have reached 'dead pool' status, with water levels so low that they can no longer flow downstream or power the hydroelectric stations. Rising temperatures have increased the demand for power, necessitating new power generation infrastructure that costs ratepayers over ten billion dollars per year. Rolling blackouts and power rationing are now commonplace.

The flow of the Colorado River, which serves 60 million people by 2050, has shrunk by nearly 20% since 2022. Western, Midwestern, and Southern states face unprecedented temperature increases and dwindling water supplies, resulting in widespread drought. With agriculture consuming over 70% of available water, megadroughts threaten the livelihood of Western states. California's crop production, for instance, has decreased by 20%, leading to food shortages and malnutrition, particularly in disadvantaged regions.

Outdated Western water rights frameworks have led to conflicts over water access between states, with some instances escalating to near open fighting between National Guard troops. Wars once fought over oil are now fought over water. Dry conditions and poor land management practices have resulted in devastating wildfires. Smoke from

wildfires and dust storms affect entire regions, impairing air quality and causing respiratory ailments. Evacuations are frequent, and options for long-term shelter are strained.

Increased rainfall, flooding, humidity, and higher temperatures have expanded vector breeding areas, leading to a surge in communicable and vector-borne diseases like Lyme disease, Zika, dengue, and West Nile. Malaria and Yellow Fever, once eradicated or dormant in the US, have reemerged. Climate change has driven some animal species to new habitats, increasing human-animal contact and the spread of zoonotic diseases. Rising temperatures have also allowed disease-causing fungi to spread into areas that were previously too cold for them to survive. Devastating effects on freshwater and marine environments have led to more frequent and severe harmful algal blooms. Public health epidemiology and surveillance programs nationwide are overwhelmed.

The surge in vector-borne and communicable diseases, water scarcity, famine, and poor air quality has strained hospital systems and burdened underfunded public health programs. Preparedness professionals have been forced to do more with less, but since a small cohort meeting in 2022, they have collaborated, innovated, and leveraged their expertise to create robust solutions to protect communities against climate change challenges. Preparedness professionals have been forced to do more with less, but since a small cohort meeting in 2022, they have collaborated, innovated, and leveraged their expertise to create robust solutions to protect communities against climate change challenges.