The Clock is Ticking: dire warnings about global warming

What causes Global Warming?

The build-up of greenhouse gases in the atmosphere such as carbon dioxide and methane, form a blanket over the Earth, trapping in heat that would normally escape the atmosphere. The leading greenhouse gas is carbon dioxide, a pollutant emitted from the burning of fossil fuels, such as coal, oil and natural gas. There has always been some natural climate variability, but record levels of carbon dioxide are changing our weather, sea levels, and climate. Throughout ice ages, higher concentrations of carbon dioxide have correlated with higher temperatures. Industrial activity dramatically increases carbon dioxide concentrations in the atmosphere.

The IPCC Report

In October, 2018, the Intergovernmental Panel on Climate Change (IPCC) issued dire warnings about risks of global warming. The report - based on three years of scientific research - projects that catastrophic effects of the climate crisis such as food shortages and droughts could occur by 2040, within the lifetime of much of the world’s population.

Furthermore, the vital threshold of 1.5 degrees Celsius temperature increase could be breached in just 12 years. Keeping temperature increases under 1.5 degrees Celsius could avert the most devastating effects of the climate crisis. The report projects significant sea-level rise, intensified droughts, increasing wildfires, and the spread of disease and poverty could reach an expected cost of $54 trillion, a figure that increases in temperature.

Despite the dire forecast, the report does make clear that there is a window of opportunity to avoid the worst effects of climate change by dramatically slashing emissions and transitioning the global economy to clean, renewable energy.

The scientific community has been warning us for many years about climate change, and the findings from this year’s report indicate that risks from continued increases in greenhouse gas emissions will cause unimaginable human suffering. Unfortunately, the United States has not responded with adequate policy in the past, but it is now clear that we need to aggressively reduce our country’s contribution to the greenhouse gas emissions.

Given that the Unites States has withdrawn from the Paris Climate Accord, it is time for the United States to reconsider that decision and to step up and do its part in curbing greenhouse gas emissions. In spite of the withdrawal from the Paris Climate Accord, many states and local governments committed to reducing their greenhouse gas emissions. More need to get involved.

What is needed are big policies globally, at the national level, at the state level, and at the local level. No doubt some of the solutions will be painful and costly for those of us who have the most. Some of the solutions will be and are controversial. But the option of doing nothing will result in chaotic climate, costly repairs after significant weather events and significant human suffering.

Among the findings are:

- Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. Note that 1.5 degrees Celsius is 2.7 degrees Fahrenheit.
- Warming from human-caused emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts, but these emissions alone are unlikely to cause global warming of 1.5°C.
- Climate-related risks for natural and human systems are higher for global warming of 1.5°C than at present, but lower than at 2°C. These risks depend on the magnitude and rate of warming, geographic location, levels of development and vulnerability, and on the choices and implementation of adaptation and mitigation options.
- Climate models project robust differences in regional climate characteristics between present-day and global warming of 1.5°C, and between 1.5°C and 2°C. These differences include increases in: mean temperature in most land and ocean regions, hot extremes in most inhabited regions, heavy precipitation in several regions, and the probability of drought and precipitation deficits in some regions.
• Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.

• A wide range of adaptation options can reduce the risks of climate change. There are limits to adaptation and adaptive capacity for some human and natural systems at global warming of 1.5°C, with associated losses. There are a range of adaptation options available to reduce the risks to natural and managed ecosystems (e.g., ecosystem-based adaptation, ecosystem restoration and avoided degradation and deforestation, biodiversity management, sustainable aquaculture, and local knowledge and indigenous knowledge), the risks of sea level rise (e.g., coastal defense and hardening), and the risks to health, livelihoods, food, water, and economic growth, especially in rural landscapes (e.g., efficient irrigation, social safety nets, disaster risk management, risk spreading and sharing, community-based adaptation) and urban areas (e.g., green infrastructure, sustainable land use and planning, and sustainable water management).

• Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, infrastructure (including transport and buildings), and industrial systems. These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options, and a significant upscauling of investments in those options.

• Adaptation options specific to national contexts, if carefully selected together with enabling conditions, will have benefits for sustainable development and poverty reduction with global warming of 1.5°C, although trade-offs are possible.

• Collective efforts at all levels, in ways that reflect different circumstances and capabilities, in the pursuit of limiting global warming to 1.5°C, taking into account equity as well as effectiveness, can facilitate strengthening the global response to climate change, achieving sustainable development and eradicating poverty.

• Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions in 2030 of 52–58 GtCO2eq yr⁻¹. Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030. Avoiding overshoot and reliance on future largescale deployment of carbon dioxide removal (CDR) can only be achieved if global CO2 emissions start to decline well before 2030.

**Responses to the 2018 IPCC Report**

According to reporting by Jonathan Watts in the article “We have 12 years to limit climate change catastrophe, warns UN” in *The Guardian* on October 8, 2018, “Bob Ward, of the Grantham Research Institute on Climate Change, said the final document was ‘incredibly conservative’ because it did not mention the likely rise in climate-driven refugees or the danger of tipping points that could push the world on to an irreversible path of extreme warming.”

Sierra Club Executive Director Michael Brune released the following statement: “Humanity cannot afford to sleep through the blaring alarm of this wake-up call. This report is clear: the catastrophic effects of climate change like famine and droughts could shape the world for those of us alive today and for generations to come if we do not act immediately. Already, the costs of the climate crisis are clear as devastating fires ravage our homes and forests and historically strong superstorms tear apart our communities — especially the world’s most vulnerable communities. Meanwhile, those who are supposed to lead -- like Donald Trump and Congressional Republicans -- are burying their heads in the sands while the seas are rising, refusing to even acknowledge that there is a problem as they frantically seek to protect the profits of corporate polluters.

Brune emphasized, “However, there is a path forward. To avoid the worst effects of the climate crisis, we must move beyond dirty fossil fuels like oil, gas, and coal to an economy powered by 100% clean, renewable energy now. The clean energy solutions that cut the carbon pollution fueling the climate crisis are available and affordable right now. Visionary leaders and millions of people are organizing to ensure more than half of the nation’s coal plants are retired or retiring, dangerous pipelines are stopped, electric vehicles are deployed, the build-out of dirty gas infrastructure is halted, and more American cities commit to 100% clean energy. We are not waiting around for Donald Trump and Congress. Across the country, alliances and partnerships are being built among grassroots activists, frontline communities, visionary elected officials, and concerned people to build an economy powered by 100% clean energy that leaves nobody behind. Together, we will work to support leaders who back those goals and who fight back against corporate polluters. We can achieve this together, because we cannot and will not allow a handful of politicians to threaten the future of humanity.”

**To see more of the findings**