



MIT Alumni for Climate Action

Mission

[@MITalum4climate Twitter](#) A group of MIT alumni who are concerned about the devastating effects of climate change and who support action at all levels to stop the damage.

[MIT.alumniaction.com Website](#) The MIT Alumni for Climate Action is a non-partisan group of Massachusetts Institute of Technology alumni concerned about the devastating effects of climate change. We support action at all levels to communicate the urgency of the problem and reduce the risk and damage from climate change. We support science-based interventions in the energy, transportation, industrial, and agricultural systems and elimination of fossil fuel usage to drastically reduce carbon dioxide and other greenhouse gas emissions.

Rationale

Human activities have increased the concentration of [carbon dioxide](#) in our atmosphere to over 400 parts per million (ppm) (Figure 1, upper panel), which is higher than at any point during human history. The last time carbon dioxide was this high was >3 million years ago, when the temperature was 2°-3°C higher and the sea level was 15-25 meters higher than today. Carbon dioxide is increasing due to the burning of fossil fuels, greatly amplifying Earth's natural greenhouse effect, and leading to global temperature rise (Figure 2, lower panel), warming oceans, melting polar ice, glacial retreat, sea level rise, extreme weather events, and ocean acidification, commonly referred to in aggregate as [climate change](#).

The United Nations Intergovernmental Panel on Climate Change ([IPCC](#)) assessments have detailed the far-reaching and unprecedented responses required to limit the worst damages which would otherwise result from climate change. In 2015, the international community of nations responded with the [Paris Agreement](#) with targets for limiting carbon emissions that will lessen climate change and global warming, and ensure a more sustainable world, with clear benefits to people and natural ecosystems.

Consequently, our immediate goal must be to start reducing carbon emissions by developing pathways to 50 % reduction by 2030, followed by their [elimination by 2050](#). The longer we wait to act, the more difficult the problems will be to address in future.

Figure 1. (Upper) Atmospheric carbon dioxide concentration (Y-axis in parts per million, ppm) versus time 500,000 years before present (x-axis in years prior to present).

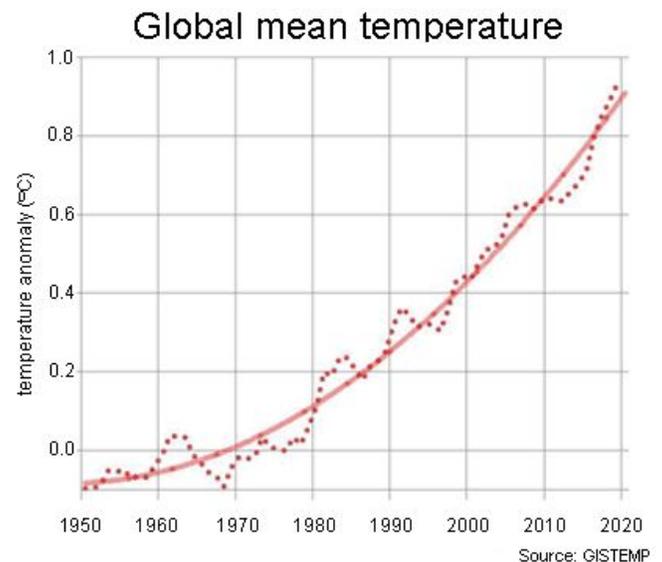
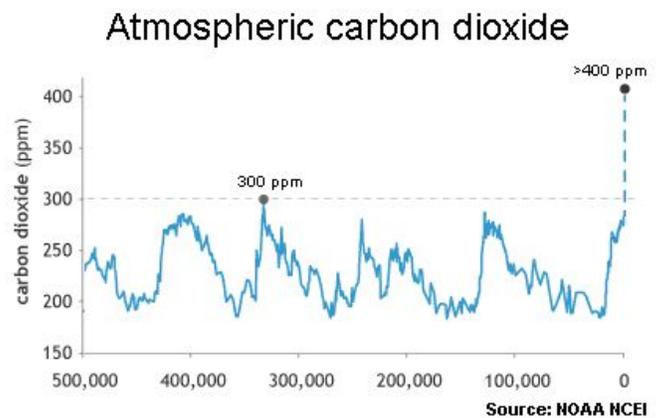


Figure 2. (Lower) Global mean temperature 1950-2020 (5-year averages plotted in °C (y-axis) versus years (x-axis)).

Roadmap

Central to our response to climate change is a pledge to reduce and eliminate fossil fuel use as rapidly as possible in order to stay within the limits set by the Paris Agreement. An aggressive timeline is needed to avoid the worst damages from climate change, which will otherwise occur during the 21st century. In addition, we must adapt to the worst changes already underway and develop the technologies needed to achieve carbon-neutrality. The following are priorities and actions to effectively address the challenges of climate change:

Aspire to make the world carbon-neutral within a generation. “Carbon-neutral” means no net addition of greenhouse gases in the atmosphere. The sooner we can achieve this aspirational goal, the less damage we will experience in the future. Help from everyone is needed to ensure success, from our elected leaders to ordinary citizens and businesses. Governments and people should immediately commit to cut greenhouse gases by 50 % by 2030 and become carbon neutral by 2050 through legislation and personal actions.

Replace our fossil fuel power generation with carbon-free energy. Begin to replace its fossil fuel plants immediately with renewable wind and solar power, rapidly move towards the development of off-shore wind power capability, and expand commercial solar photovoltaic capability. On-shore wind and rooftop residential, government and commercial solar installations should also be expanded.

Build more efficient transportation systems. Expand and expedite the transition to electric vehicles, mass-transit and low-carbon transportation solutions such as light rails and subways. This may be accomplished by extending tax credits to all high mileage vehicles, including hybrids. Electric vehicle charging infrastructure should be incentivized not just in homes, but also at gas stations, garages, and workplaces to facilitate transition away from gasoline and diesel powered vehicles.

Invest in efficient buildings and communities. Move rapidly to the development of energy efficient buildings and communities. New construction should include smart, efficient materials, renewable energy sources and electric vehicle chargers. The world’s research enterprise must be encouraged to find technical solutions to climate change problems, including smart grids, improved energy storage, and expanded liquid biofuels.

Expand carbon capture. Improve management of agricultural and forest lands to increase their capacity for carbon capture, which will also improve our air and water quality, and promote better health. Prevent the destruction of the Amazon and the world’s great forests.

Incentivize our citizens and businesses. Put a price on carbon and expand programs to cap carbon emissions to shrink our carbon footprint rapidly. In order to achieve the goal, phased revenue neutral carbon pricing legislation is necessary, with mandated increases in the commitment of utilities to renewable energy and incentivizing fuel-efficient cars, trucks and appliances, and less wasteful lifestyles for our citizens.

Protect public health. Develop effective plans to respond to the adverse public health consequences of climate change, including managing extreme weather events such as in expanding flood zones, and addressing health concerns from increased temperatures, ozone, asthma, allergies, and infectious diseases. Management of low-lying lands and vulnerable communities, which are likely to suffer the worst effects of flooding and storms, must be prioritized.

Plans to achieve carbon-neutrality have been announced by many colleges, companies, cities, states, and countries. In the US, states such as California, New York, New Jersey, Oregon, Hawaii, and Maryland have passed legislation to reduce greenhouse gases and/or increase their renewable energy portfolio to 50 % by 2030. Some have declared goals of achieving net-zero carbon emissions by 2050. Given the unprecedented challenges we face on a global scale, expanded grassroots efforts are needed by everyone everywhere to achieve these goals.