

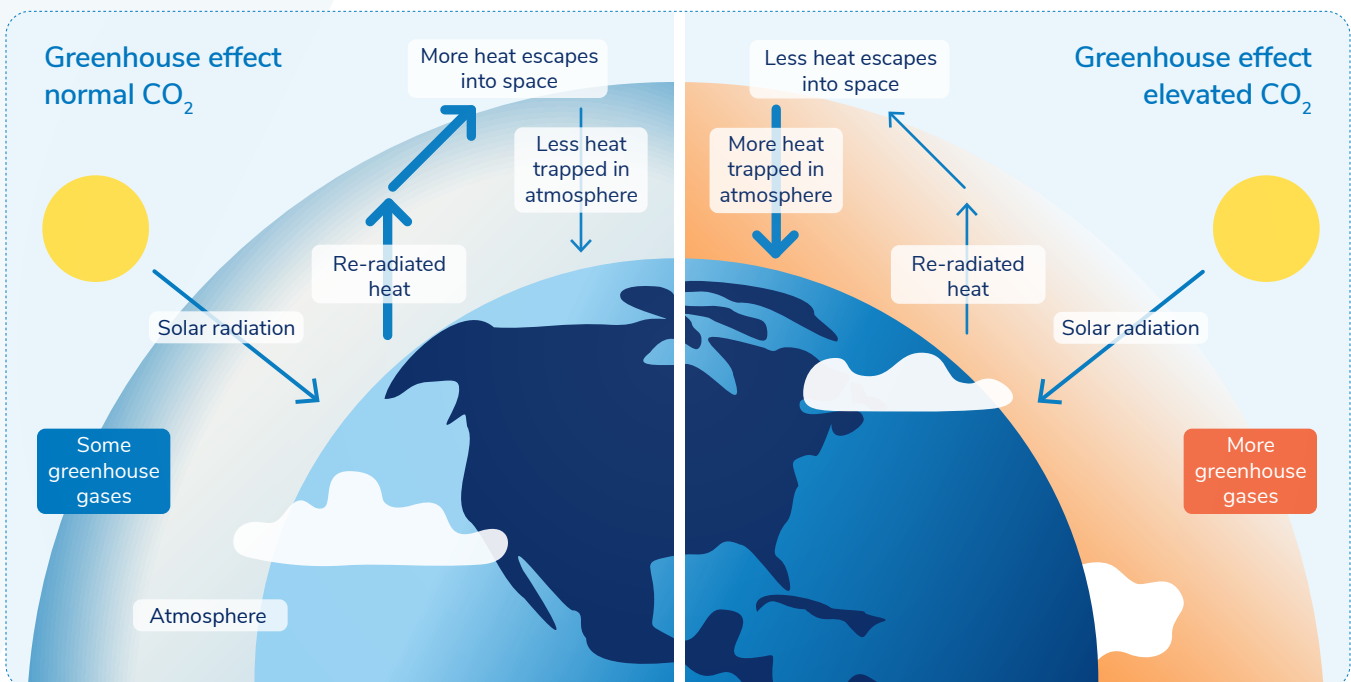
Climate change and the shift to net zero

In August 2021, a United Nations-led report drafted by hundreds of climate scientists and signed off by the 195 member countries of the Intergovernmental Panel on Climate Change (IPCC) concluded that it is undeniable that carbon-emitting human activity has caused an unprecedented change in climate patterns. In other words, the world's scientists and governments are all clear on the facts – climate change is indeed happening, and it is being caused by humans.

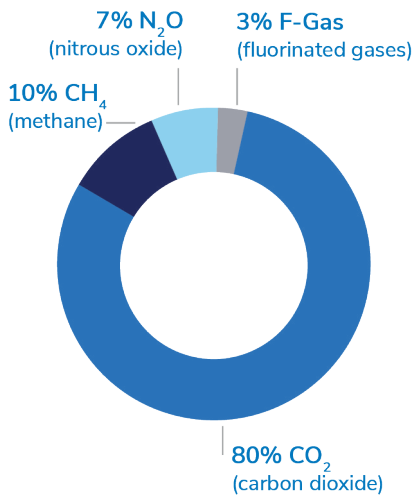
The world has begun to take action. Across the globe, countries have introduced sweeping regulations and laws to combat climate change and its effects with a goal of reaching “net zero” by 2050. Reaching this goal will involve a seismic shift in the global economy, and a lot of capital investment.

What is climate change

Climate is the average weather trend in a location measured over many years. Climate change means that there is a shift in that average trend. Our planet is now experiencing a period of rapid change in its climate patterns. The consensus amongst the world's scientists is that it is because of human activities, such as the burning of fossil fuels, agriculture and land clearing. These activities all increase the amount of greenhouse gases released into the atmosphere, which trap extra heat from the sun and causes the Earth's temperature to rise.



Greenhouse gases are comprised of a variety of different gases, with the most common being:



Source: www.epa.gov/ghgemissions/overview-greenhouse-gases

The global economic sectors that contribute the most greenhouse gas emissions:

CONTRIBUTOR	CONTRIBUTION
Electricity and heat production	25%
Agriculture	24%
Industry	21%
Transportation	14%
Buildings	6%
Other	10%

Source: www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data

Climate change will transform the way people live. Some regions could become dangerously hot and in others will be made uninhabitable by rising sea levels. Extreme weather events – such as heatwaves, floods and storms – will become more frequent and intense. In 2021, there were several extreme weather events that became widely publicized and directly tied to climate change, such as a deadly heatwave in Texas, wildfires in Southern Europe and catastrophic flooding in British Columbia. As human activity continues to warm the planet, weather-related disasters such as these are becoming far more common.

However, we do have the ability to manage and mitigate the impact of climate change. The success of the Montreal protocol is proof of this. It was an international agreement adopted in 1987 to protect the ozone layer. After scientists identified that specific gases (freons) were responsible for the deterioration of the ozone layer, the agreement limited their industrial use and replaced them with less harmful substances. As a result, we have been able to collectively mitigate the degradation of the ozone layer.

The global effort to mitigate the impact of climate change

Global leaders have made commitments to act by reducing our reliance on carbon intensive activities, such as fossil fuel consumption and poor agricultural practices. A concerted effort began in 1992 with the creation of the UNFCCC (United Nations Framework Convention on Climate Change). This was an international environmental treaty to limit global warming to 2°C above pre-industrial levels by addressing “dangerous human interference with the climate system” by stabilizing greenhouse gas concentrations in the atmosphere.

In 2015, 196 parties signed the historic Paris Agreement, pledging to reduce emissions by 2030. Most recently, at COP26 in Glasgow, policymakers signed further agreements to reduce the use of coal, stop deforestation, end fossil fuel subsidies and provide funding to poorer countries to address climate change and switch to clean energy.

It’s now well recognized that the Paris Agreement’s goal of limiting global warming to 2°C above pre-industrial levels by the end of the century isn’t enough. To negate the more devastating impacts of climate change, scientists have determined that as a planet, we must reach net-zero greenhouse gas emissions by 2050 and limit the global temperature increase to 1.5°C. To date, 137 countries have committed to carbon neutrality, as tracked by the Energy and Climate Intelligence Unit, and confirmed by pledges to the Carbon Neutrality Coalition and recent policy statements by governments. Net zero commitments now represent much of the world by a variety of measures.

Net zero commitments now represent:

90% of the global economy

88% of global emissions

85% of the global population

Source: zerotracker.net

The world's largest greenhouse gas emitters (ranked) and their net-zero commitments:

COUNTRY/ REGION	NET-ZERO TARGET YEAR
China	2060
United States	2050
India	2070
Russia	2060
Indonesia	2060
Brazil	2050
Japan	2050
Iran	n/a
Germany	2045
Canada	2050

Source: eciu.net/netzerotracker, www.climatewatchdata.org and ourworldindata.org/greenhouse-gas-emissions

What is net zero

Net zero strikes a balance between the greenhouse gases the world puts into the atmosphere and those we take out. Getting to that state is like running a bath: the amount of water in a bathtub is determined by the amount of input (water from the tap) and the amount of output (water leaving via the drain). To keep the level of water in the tub balanced, the amount of water going down the drain needs to be the same as the amount pouring in. Achieving net zero applies the same principle.



Economic impact and opportunity

The shift to net zero will have a tremendous effect on the global economy. It will create new jobs that demand huge investment and require infrastructure, businesses and how we live our lives to evolve. Taking action could create significant opportunities, while inaction could lead to economic loss.

According to new Swiss Re Institute research, by mid-century, the world could lose around 10% of its total economic value from climate change. That scenario assumes temperature increases stay on the current trajectory, and both the Paris Agreement and 2050 net-zero emissions targets are not met.

However, decisive climate measures would boost economic growth. A 2018 report by the United Nations Global Commission on the Economy and Climate showed that a climate-friendly economy would generate roughly \$26 trillion USD and create 65 million jobs by 2030. Areas such as renewable energy, electric transport and thermal renovation would be large beneficiaries.

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Additionally, the International Labour Organization (ILO) has stated that a global low-carbon economy would create four times as many jobs than it would destroy. For example, in the electricity sector, 400,000 fossil fuel-based jobs would be lost, however 2.5 million renewable energy jobs would be created, more than offsetting the job loss by over a factor of six.

The longer-term the transition to low-carbon and climate-resilient economies will require significant investment. It is estimated that at least \$60 trillion USD¹ will be required to make this shift from now until 2050. That investment requires financing which, in part, will have to be provided by financial institutions such as: \$35 trillion USD to decarbonize the world's energy system through renewable energy and energy efficiency; another \$15 USD trillion to adapt manmade infrastructure to changing meteorological conditions; and another \$2 trillion USD to reorganize global land-use in ways that meet growing demands for agricultural commodities while stopping tropical deforestation.

The Global Commission on the Economy and Climate concluded that ambitious climate action does not need to cost much more than business-as-usual.

Conclusion

The planet faces one of its greatest challenges, and climate change is considered an existential threat to us all. However, humanity is responding, and action is accelerating. History has shown that when we band together, we can overcome the challenges we collectively face.

At the same time, this response is creating a once-in-a-generation shift which will lead to a new economic era. The combination of rapid innovation, infrastructure investment and increased productivity will drive economic growth. The 21st century will be defined by our response to climate change.



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¹ UN Environment Program: Climate change <https://www.unepfi.org/climate-change/climate-change/>

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