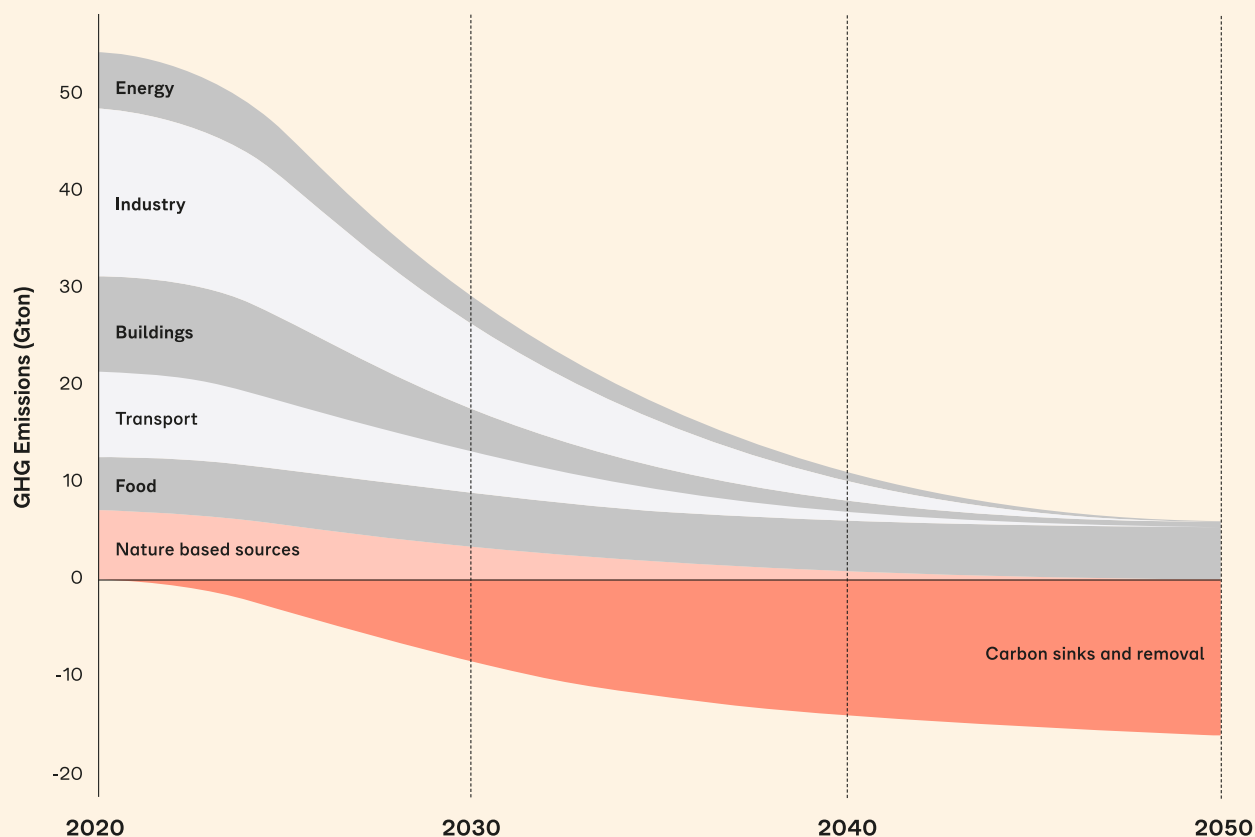


Clarifying Concepts

NET ZERO

Net Zero is a state in which Greenhouse Gas (GHG)¹ emissions released in the atmosphere are balanced by GHG removals over a specific period.



Source: <https://normative.io/insight/net-zero-explained>



140

countries have a net zero target



122

banks have a net zero target



1/3rd

publicly listed companies have net zero target

While a growing number of countries, business and institutions are pledging to a net zero target, the sufficiency of these targets to achieve goals of Paris Agreement remains a cause of concern.

1. Greenhouse Gases are the gases whose increased concentration is responsible for global warming and climate change. Carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary GHGs in the Earth's atmosphere.

STOCK AND FLOW: WHY IS NET ZERO IMPORTANT?

Climate change is often described as a stock-flow problem. The rise in global temperature depends on the concentration - or 'stock'- of GHGs in the atmosphere. Over the years, human-induced emissions have become significantly more than what the natural processes (mostly forests and oceans) can remove from the atmosphere. So, the total stock of GHG in the atmosphere has increased, leading to global warming.

To limit global warming, we need to stop the atmospheric stock of GHGs from increasing. For this, additional GHG emissions - the 'flow'- must reduce significantly. net zero is a state where 'the flow' of GHGs becomes zero, which is to say that no additional emissions are added to the atmosphere.

HOW DO WE ACHIEVE NET ZERO?

To transition to net zero, countries need to rapidly reduce their emissions while simultaneously enhancing their carbon sinks.²

Emissions can be reduced by phasing down emission-intensive technologies and scaling clean technologies. For example, the [Intergovernmental Panel on Climate Change \(IPCC\)](#) projects that 75-80% of electricity by 2050 will need to come from renewable sources if we are to remain within 1.5 degree temperature rise.

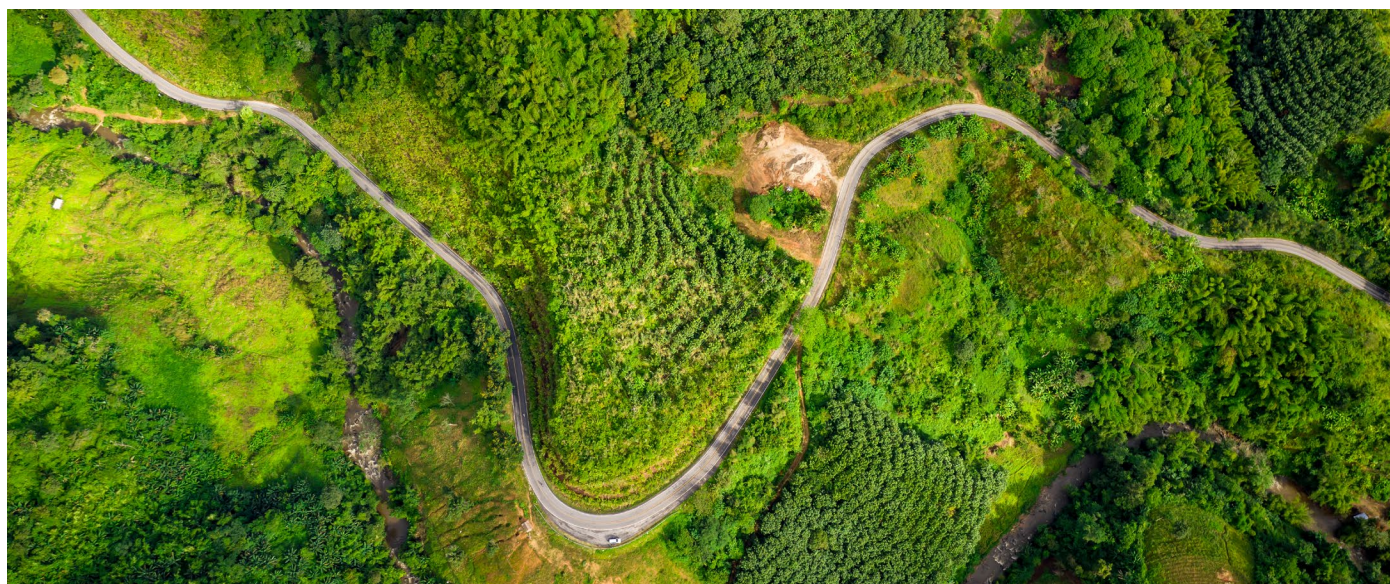
Countries also need to offset emissions that cannot be abated through carbon sinks such as forests or new technologies such as capture and storage.

For net zero to be effective, GHG emissions that are removed should not return to the atmosphere over time, for example through deforestation.

IS THERE A TIMELINE TO REACH NET ZERO?

The [IPCC](#) projects that net zero for CO₂ should be achieved around 2050 to limit the temperature rise to 1.5 degrees above pre-industrial levels. However, not all countries are expected to reach net zero by 2050.

High-emitting developed countries are encouraged to commit to an earlier date for reaching net zero. This is due to equity-related considerations such as the share of historical emissions and per-capita emissions as well as a much higher capacity to act.



2. [Carbon sink](#) is any process, activity or mechanism which removes more CO₂ than it emits.

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TO LEARN MORE

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The Clarifying Concepts series provides short explanations of foundational ideas and terminology in sustainable finance to help professionals from different fields navigate emerging issues.

It is produced by the Center for Sustainable Finance (CSF), a knowledge and net-working hub which aims to accelerate India's financial sector towards a more sus-tainable future. CSF is managed by Climate Policy Initiative (CPI).