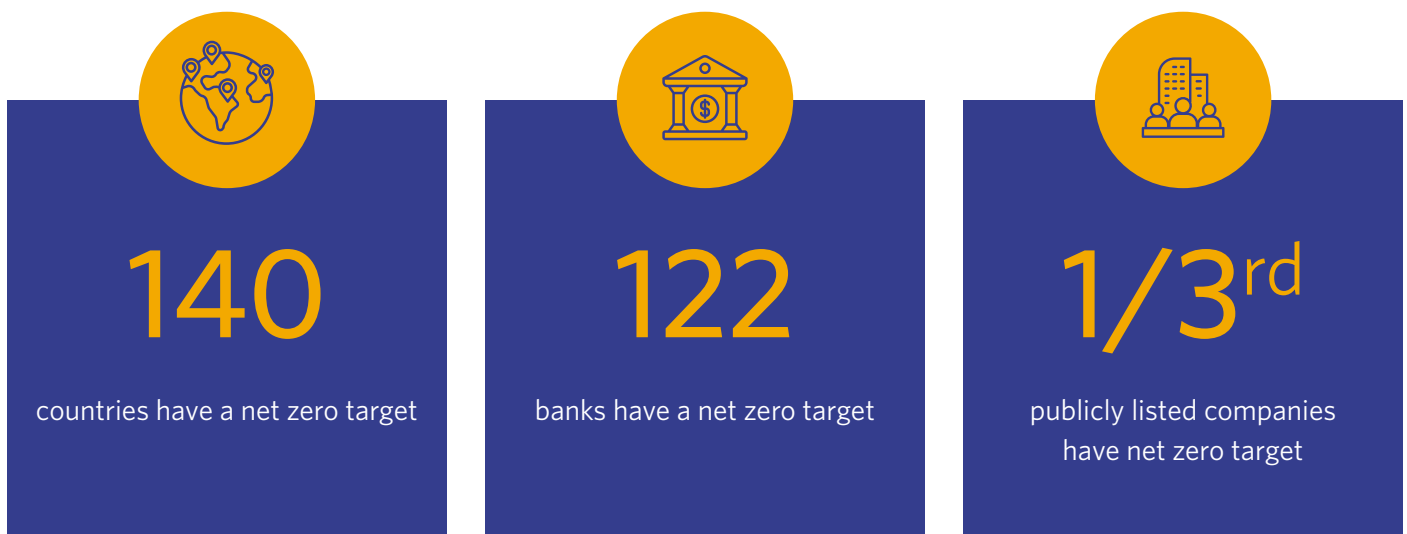


NET ZERO

[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.

Commitments till now



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.

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 of GHG in the atmosphere or the 'stock'. 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 GHG from increasing. For this, additional GHG emissions- the 'flow' needs to reduce significantly. Net Zero is a state where 'the flow' of GHG becomes zero, which is to say that no additional emissions are added to the atmosphere.

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.

How do we achieve Net Zero?

For transitioning to net zero, countries need to rapidly reduce their emissions and simultaneously enhance their carbon sinks².

Emissions can be reduced by phasing down emission-intensive technologies and scaling clean technologies. For example, [Intergovernmental Panel on Climate Change \(IPCC\)](#) projects that 75-80% of the electricity by 2050 would 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?

[IPCC](#) projects that net zero for CO₂ should be achieved around 2050 to limit the temperature rise to 1.5 degree 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 know more

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