

"A Concise Guide to 50 Foundational Net Zero Terms"

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Introduction

- Net zero refers to achieving a balance between the greenhouse gases emitted into the atmosphere and those removed. The aim is for human activities to no longer increase the concentration of emissions like carbon dioxide that are driving climate change.
- As net zero transitions gain momentum globally, professionals across sectors require fluency in the core terminology. This authoritative guide elucidates 50 essential net zero terms spanning climate science, greenhouse gas management, decarbonisation technologies, policy instruments, and climate justice.
- From carbon sequestration to direct air capture, it equips practitioners with literacy on the established and emerging net zero lexicon. Key concepts explained include carbon budgets, 1.5°C pathways, carbon pricing, offsets, and science-based targets.
- Scientists, policymakers, investors and business leaders need a shared understanding of the net zero vocabulary. This guide enables you to accurately discuss, analyse and implement evidence-based strategies aligned with net zero goals. It provides professionals an indispensable reference for navigating complex multi-stakeholder conversations on real-world decarbonisation

50 terminologies of Net Zero

1. Net zero:

- A state of balance between anthropogenic emissions and anthropogenic removals.

2. Greenhouse gases (GHGs):

- Gases that absorb and trap heat from the Sun in the Earth's atmosphere, causing climate change.

3. Carbon dioxide (CO₂):

- The most abundant and important GHG, produced by burning fossil fuels, deforestation, and other human activities.

4. Methane (CH₄):

- The second most abundant GHG, produced by agriculture, waste management, and fossil fuel extraction.

5. Nitrous oxide (N₂O):

- A potent GHG, produced by fertilizers, industrial processes, and combustion.

6. Hydrofluorocarbons (HFCs):

- Synthetic GHGs, used as refrigerants, aerosols, and solvents.

7. Perfluorocarbons (PFCs):

- Synthetic GHGs, used in the semiconductor industry, aluminium production, and cosmetics.

8. Sulphur hexafluoride (SF₆):

- A synthetic GHG, used as an insulator in electrical equipment.

9. Nitrogen trifluoride (NF₃):

- A synthetic GHG used in the production of solar panels and LCD screens.

10. 1.5°C:

- The limit of global temperature rise above pre-industrial levels that science has made clear we must achieve to avoid the most catastrophic impacts of climate change.

11. Carbon budget:

- The amount of CO₂ that the world can emit to limit warming to 1.5°C or 2°C.

12. Carbon sink:

- A reservoir where a GHG is stored or a process that removes CO₂ from the atmosphere, such as forests, oceans, and soils.

13. Carbon capture:

- The collection and transport of concentrated CO₂ from emission sources such as power plants.

14. Carbon storage:

- The injection and permanent sequestration of CO₂ in underground geological formations.

15. Carbon utilization:

- The conversion and use of CO₂ as a resource for products such as fuels, chemicals, and materials.

16. Carbon capture, utilization, and storage (CCUS):

- A set of technologies that combine carbon capture, utilization, and storage to reduce CO₂ emissions from fossil fuels and industrial processes.

17. Bioenergy:

- Fuel that is produced from biomass, such as plant or animal materials, that is used to generate heat or electricity.

18. Bioenergy with carbon capture and storage (BECCS):

- A technology that uses bioenergy along with carbon capture and storage to remove CO₂ from the atmosphere.

19. Direct air capture (DAC):

- A technology that captures CO₂ directly from ambient air using chemical or physical processes.

20. Enhanced weathering:

- A process that accelerates the natural breakdown of minerals that absorb CO₂, such as olivine and basalt.

21. Ocean fertilization:

- A process that stimulates the growth of phytoplankton that absorb CO₂, by adding nutrients such as iron to the ocean surface.

22. Afforestation:

- The establishment of forests on land that has not been forested for a long time or never before.

23. Reforestation:

- The restoration of forests on land that was recently forested but has been cleared or degraded

24. Avoided deforestation:

- The prevention of forest loss or degradation by protecting existing forests from logging, fire, or conversion to other land uses.

25. Forest management:

- The application of practices that enhance the carbon sequestration and conservation of forests, such as reducing harvesting intensity, extending rotation periods, and increasing species diversity.

26. Agroforestry:

- The integration of trees and crops or livestock on the same land, to provide multiple benefits such as carbon storage, biodiversity, and income.

27. Soil carbon sequestration:

- The increase of organic carbon content in soils through practices such as no-till farming, cover cropping, and composting.

28. Blue carbon:

- The carbon stored in coastal and marine ecosystems, such as mangroves, seagrasses, and salt marshes.

29. Renewable energy:

- Energy that is derived from natural sources that are replenished at a faster rate than they are consumed, such as solar, wind, hydro, geothermal, and biomass.

30. Energy efficiency:

- The reduction of energy consumption for a given service or output while keeping the same level of value, such as lighting, heating, or mobility.

31. Electrification:

- The substitution of fossil fuels with electricity as the energy source for end-use sectors, such as transport, buildings, and industry.

32. Hydrogen:

- A clean-burning fuel that can be produced from various sources, such as natural gas, biomass, or water electrolysis.

33. Green hydrogen:

- Hydrogen that is produced from renewable energy sources, such as solar or wind power.

34. Blue hydrogen:

- Hydrogen that is produced from natural gas with carbon capture and storage.

35. Grey hydrogen:

- Hydrogen that is produced from natural gas without carbon capture and storage.

36. Fuel switching:

- The replacement of a high-carbon fuel with a low-carbon or zero-carbon fuel, such as natural gas with biogas or hydrogen.

37. Carbon pricing:

- A policy instrument that puts a cost on emitting CO₂ or other GHGs, through a tax or a cap-and-trade system.

38. Carbon tax:

- A levy imposed on the carbon content of fuels or the CO₂ emissions of activities.

39. Cap-and-trade:

- A system that sets a limit on the total amount of CO₂ or other GHGs that can be emitted by regulated entities, and allows them to trade emission allowances within that limit.

40. Carbon offset:

- A reduction, removal, or avoidance of CO₂ or other GHGs in one location that compensates for an emission elsewhere.

41. Carbon credit:

- A financial instrument that represents the right to emit one tonne of carbon dioxide equivalent. Carbon credits are traded on exchanges and can be used to offset emissions or invest in emission-reducing projects.

42. Carbon footprint:

- The amount of CO₂ or other GHGs that are emitted by an individual, organization, product, or activity, directly or indirectly.

43. Carbon neutrality:

- The achievement of net zero CO₂ emissions by balancing CO₂ emissions with CO₂ removals or offsets.

44. Climate neutrality:

- The achievement of net zero GHG emissions by balancing GHG emissions with GHG removals or offsets.

45. Net zero emissions:

- The achievement of net zero GHG emissions by reducing GHG emissions to the lowest possible level and balancing any remaining emissions with GHG removals.

46. Science-based target:

- A GHG emission reduction target that is consistent with the level of decarbonisation required to limit global warming to 1.5°C or well below 2°C.

47. Mitigation:

- Actions that reduce the sources or enhance the sinks of GHGs, such as renewable energy, energy efficiency, or afforestation.

48. Adaptation:

- Actions that help manage the effects of climate change, such as building flood defences, improving water management, or enhancing resilience.

49. Loss and damage:

- The adverse impacts of climate change that cannot be avoided by mitigation or adaptation, such as extreme weather events, sea level rise, or biodiversity loss.

50. Climate justice:

- The recognition and addressing of the unequal distribution of the causes and consequences of climate change and the promotion of the rights and interests of the most vulnerable and marginalized groups.