

Net Zero Glossary

Adaption: measures to manage the impacts of current and future climate change eg stormwater management.

Backcasting: a method of developing long term strategies by starting at a long term vision where a target has been met and working back to the present day. Very useful for Net Zero Strategies.

BESS: Battery Energy Storage System: large scale battery installations to help match patterns of supply and demand on the electricity grid.

Biofuels: fuels derived from crops or organic waste. Technically carbon neutral, but often limited by land use requirements eg competing for space with food and nature.

Carbon Capture and Storage (CCS), sometimes CCUS to include 'Use': technologies to extract carbon dioxide from industrial processes and store them (eg in an oil well).

Carbon Dioxide Removals (CDRs): a range of approaches to remove carbon dioxide directly from the atmosphere including the use of biochar, enhanced rock weathering and Direct Air Capture (DAC).

Carbon Footprint: the total carbon emissions associated with a person, organisation or product. It is expressed in CO₂e and consists of 3 scopes which are (broadly):

Scope 1: emissions from something you own eg a gas boiler, your vehicle or refrigerant leaks from your air conditioning.

Scope 2: emissions associated with the electricity you purchase from the electricity grid.

Scope 3: everything else! For example, if you purchase an item, then the carbon footprint of its manufacture gets added to your scope 3 emissions. It can also include emissions from leased products and from the use/disposal of your product depending on where you want to draw the boundary.

Carbon Intensity: the amount of carbon per unit of something. Often used in terms of the carbon intensity of the electricity grid in CO₂e/kWh.

Carbon Neutral: a situation for a person, organisation or product where sufficient offsets have been purchased to balance its carbon footprint (compared to Net Zero which has a much stronger emphasis on carbon reductions).

Circular Economy: one where materials flow in continuous loops just like water, oxygen, nitrogen, carbon etc do in nature.

COP: Conference of the Parties – the annual international meeting to negotiate measures to mitigate carbon emissions. Confusingly, there is also a series of COPs for biodiversity.

Demand-side management: incentivising energy users to reduce their consumption or, more often, to shift it away from periods of peak demand where the carbon intensity of electricity is at its highest;

Electric Vehicle (EV): a lithium ion battery on wheels. BEVs are battery only, PHEVs are plug-in hybrids with a small petrol engine to support the electric motors.

Electrification: the shift away from burning molecules to using (ideally renewable) electricity in transport, industrial processes and space heating.

Embodied Energy/Carbon: the amount of energy used/carbon emitted to produce a product before you take ownership of it;

Greenhouse Gas: a gas which traps heat in the atmosphere. Different GHGs hold different amounts of heat over different timeframes, so get converted into the equivalent amount of carbon dioxide over 100 years (CO₂e) aka Global Warming Potential (GWP).

Heat Pump: a device which concentrates heat from the ground, water or atmosphere to a temperature suitable for space heating or industrial processes. The Coefficient of Performance (CoP) is how much heat energy you get out for each unit of electricity input.

Hydrogen economy: the concept of using hydrogen as an energy carrier, although the process of converting electricity into hydrogen and back into electricity is very inefficient, limiting its potential.

Insetting: siting a carbon sequestration project (eg tree planting) on land you own so you can control the project (maintain the trees) much better than through offsetting.

Intergovernmental Panel on Climate Change (IPCC): UN body for assessing the science related to climate change.

Marginal Abatement Curve (MAC): a graph of carbon abatement potential versus cost per tonne CO₂, running from those that save most money to those which cost most money per tonne abated.

Mitigation: cutting carbon emissions.

Net Zero: reducing emissions close to zero and offsetting the remainder. The emerging standard using SBTs is 90% mitigation, 10% offsetting.

Offsetting: purchasing 'carbon credits' to cover your residual emissions. These are sold by carbon sequestration/reduction projects, often through trading platforms.

Paris Agreement: the 2015 international agreement (at COP21) to restrict global warming to 1.5°C above pre-industrial levels. At the time of writing all nations except Yemen, Libya, Iran and the United States are party to the Paris Agreement.

Science Based Targets: carbon reduction trajectories calculated for different sectors by the Science Based Targets Initiative to align with the Paris Agreement. Can be/should be used to underpin Net Zero targets.

Stranded Assets: an asset which is losing value due to its redundancy in a low carbon economy eg a coal fired power station or an energy inefficient building.

Vehicle to grid (V2G): using connected EV battery as an energy balancing mechanism, either for the grid or even for a single house.