KEY DECARBONIZATION TERMS

Anthropogenic: Resulting from or produced by human activities.

Carbon dioxide (CO_2): A naturally occurring gas, CO_2 is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning biomass, of land-use changes (LUC) and of industrial processes (e.g., cement production). It is the principal anthropogenic greenhouse gas (GHG) that affects the Earth's radiative balance. It is the reference gas against which other GHGs are measured and therefore has a global warming potential (GWP) of 1.

Carbon dioxide equivalent (CO_2e) emission: The amount of carbon dioxide (CO_2) emission that would cause the same integrated radiative forcing or temperature change, over a given time horizon, as an emitted amount of a greenhouse gas (GHG) or a mixture of GHGs. There are a number of ways to compute such equivalent emissions and choose appropriate time horizons. Most typically, the CO_2-equivalent emission is obtained by multiplying the emission of a GHG by its global warming potential (GWP) for a 100-year time horizon. For a mix of GHGs it is obtained by summing the CO_2-equivalent emissions of each gas. CO_2-equivalent emission is a common scale for comparing emissions of different GHGs but does not imply equivalence of the corresponding climate change responses. There is generally no connection between CO_2-equivalent emissions and resulting CO_2-equivalent concentrations.

Carbon dioxide removal: Anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products.

Decarbonization: The process of removing or reducing greenhouse gases.

Direct emissions: Greenhouse gas emissions from sources owned or controlled by the reporting entity.

Electrification: The application of novel, energy-efficient electric technologies as alternatives to fossil-fueled or non-energized processes.

Embodied carbon emissions: The total greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of an asset (i.e., building).

Environmental product declaration (EPD): Quantifies environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.

Global warming potential (GWP): An index developed to provide a simplified means of describing the relative ability of a chemical compound to affect radiative forcing, if emitted to the atmosphere, over its lifetime in the atmosphere, and thereby to affect the global climate. Radiative forcing reflects the factors that affect the balance between the energy absorbed by the earth and the energy emitted by it in the form of longwave infrared radiation. The GWP is defined on a mass basis relative to carbon dioxide. The GWP for a compound must be calculated up to a particular integrated time horizon, for example, 20, 100, or 500 years. The time horizon most widely accepted is 100 years.

Greenhouse gas (GHG): Greenhouse gases are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself and by clouds. This property causes the greenhouse effect. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) are the primary GHGs in the Earth's atmosphere. Moreover, there are a number of entirely human-made GHGs in the atmosphere, such as the halocarbons and other chlorine- and bromine-containing substances, dealt with under the Montreal Protocol. Besides CO_2, N_2O and CH_4, the Kyoto Protocol deals with the GHGs sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Indirect emissions: Greenhouse gas emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

Life cycle assessment (LCA): The process of evaluating a component, product, assembly, building, etc. and its development from the moment of extraction of raw materials, transportation, processing, manufacturing, use, recyclability, and disposal and assigning a value or assessment of its cumulative and ultimate social, environmental and economic costs, benefits, and impacts. This is often referred to as a cradle-to-grave or cradle-to-cradle assessment.

Net zero carbon emissions: Achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period.

Operational carbon emissions: The total greenhouse gas emissions associated with the operation of an asset (i.e., building) during the use stage of the asset.

Whole life carbon emissions: The total greenhouse gas emissions, including operational carbon emissions and embodied carbon emissions over the life cycle of an asset (i.e., building).